

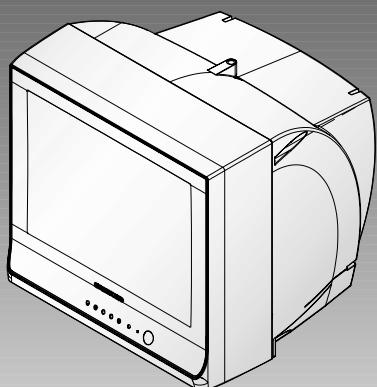
SAMSUNG

COLOR TELEVISION RECEIVER

Chassis : KS9A(P)
Model : CB21N112TZXXEC

SERVICE Manual

COLOR TELEVISION RECEIVER



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Printed in Korea
AA82-01567A

1. Precautions

Follow these safety, servicing and ESD precautions to prevent damage and protect against potential hazards such as electrical shock and X-rays.

1-1 Safety Precautions

1. Be sure that all of the built-in protective devices are replaced. Restore any missing protective shields.
2. When reinstalling the chassis and its assemblies, be sure to restore all protective devices, including: nonmetallic control knobs and compartment covers.
3. Make sure that there are no cabinet openings through which people—particularly children—might insert fingers and contact dangerous voltages. Such openings include the spacing between the picture tube and the cabinet mask, excessively wide cabinet ventilation slots, and improperly fitted back covers.

If the measured resistance is less than 1.0 megohm or greater than 5.2 megohms, an abnormality exists that must be corrected before the unit is returned to the customer.

4. Leakage Current Hot Check (Figure 1-1): Warning: Do not use an isolation transformer during this test. Use a leakage-current tester or a metering system that complies with American National Standards Institute (ANIS C101.1, Leakage Current for Appliances), and Underwriters Laboratories (UL Publication UL1410, 59.7).
5. With the unit completely reassembled, plug the AC line cord directly into the power outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: antennas, handle brackets, metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

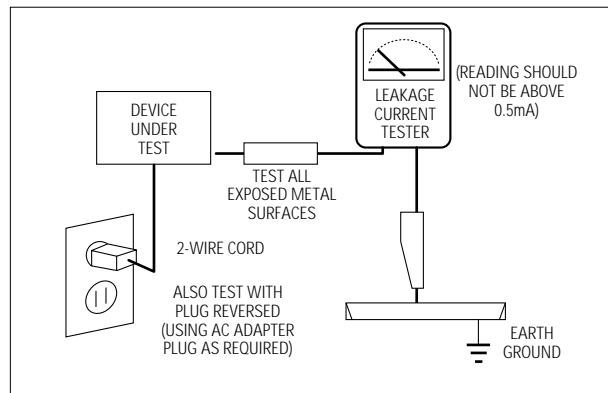


Fig. 1-1 AC Leakage Test

6. Antenna Cold Check: With the unit's AC plug disconnected from the AC source, connect an electrical jumper across the two AC prongs. Connect one lead of the ohmmeter to an AC prong. Connect the other lead to the coaxial connector.
7. X-ray Limits: The picture tube is especially designed to prohibit X-ray emissions. To ensure continued X-ray protection, replace the picture tube only with one that is the same type as the original. Carefully reinstall the picture tube shields and mounting hardware; these also provide X-ray protection.
8. High Voltage Limits: High voltage must be measured each time servicing is done on the B+, horizontal deflection or high voltage circuits. Correct operation of the X-ray protection circuits must be reconfirmed whenever they are serviced. (X-ray protection circuits also may be called "horizontal disable" or "hold-down".) Heed the high voltage limits. These include the X-ray Protection Specifications Label, and the Product Safety and X-ray Warning Note on the service data schematic.

1-1 Safety Precautions (Continued)

9. High voltage is maintained within specified limits by close-tolerance, safety-related components and adjustments. If the high voltage exceeds the specified limits, check each of the special components.
10. Design Alteration Warning:
Never alter or add to the mechanical or electrical design of this unit. Example: Do not add auxiliary audio or video connectors. Such alterations might create a safety hazard. Also, any design changes or additions will void the manufacturer's warranty.
11. Hot Chassis Warning:
Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord. If an isolation transformer is not used, these units may be safely serviced only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC source.

To confirm that the AC power plug is inserted correctly, do the following: Using an AC voltmeter, measure the voltage between the chassis and a known earth ground. If the reading is greater than 1.0V, remove the AC power plug, reverse its polarity and reinsert. Re-measure the voltage between the chassis and ground.
12. Some TV chassis are designed to operate with 85 volts AC between chassis and ground, regardless of the AC plug polarity. These units can be safely serviced only if an isolation transformer is inserted between the receiver and the power source.
13. Some TV chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulating material that must not be defeated or altered.
14. Components, parts and wiring that appear to have overheated or that are otherwise damaged should be replaced with parts that meet the original specifications. Always determine the cause of damage or overheating, and correct any potential hazards.
15. Observe the original lead dress, especially near the following areas: Antenna wiring, sharp edges, and especially the AC and high voltage power supplies. Always inspect for pinched, out-of-place, or frayed wiring. Do not change the spacing between components and the printed circuit board. Check the AC power cord for damage. Make sure that leads and components do not touch thermally hot parts.
16. Picture Tube Implosion Warning:
The picture tube in this receiver employs "integral implosion" protection. To ensure continued implosion protection, make sure that the replacement picture tube is the same as the original.
17. Do not remove, install or handle the picture tube without first putting on shatterproof goggles equipped with side shields. Never handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; do not try to remove such "permanently attached" yokes from the picture tube.
18. Product Safety Notice:
Some electrical and mechanical parts have special safety-related characteristics which might not be obvious from visual inspection. These safety features and the protection they give might be lost if the replacement component differs from the original—even if the replacement is rated for higher voltage, wattage, etc.

Components that are critical for safety are indicated in the circuit diagram by shading, (or). Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.

1-2 Servicing Precautions

Warning1: First read the "Safety Precautions" section of this manual. If some unforeseen circumstance creates a conflict between the servicing and safety precautions, always follow the safety precautions.

Warning2: An electrolytic capacitor installed with the wrong polarity might explode.

1. Servicing precautions are printed on the cabinet. Follow them.
2. Always unplug the unit's AC power cord from the AC power source before attempting to: (a) Remove or reinstall any component or assembly, (b) Disconnect an electrical plug or connector, (c) Connect a test component in parallel with an electrolytic capacitor.
3. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
4. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the portion around the serviced part has not been damaged.
5. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
6. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500V) to the blades of the AC plug.

The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
7. Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
8. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3 Precautions for Electrostatically Sensitive Devices (ESDs)

1. Some semiconductor (“solid state”) devices are easily damaged by static electricity. Such components are called Electrostatically Sensitive Devices (ESDs); examples include integrated circuits and some field-effect transistors. The following techniques will reduce the occurrence of component damage caused by static electricity.
2. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. (Be sure to remove it prior to applying power—this is an electric shock precaution.)
3. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of electrostatic charge.
4. Do not use freon-propelled chemicals. These can generate electrical charges that damage ESDs.
5. Use only a grounded-tip soldering iron when soldering or unsoldering ESDs.
6. Use only an anti-static solder removal device. Many solder removal devices are not rated as “anti-static”; these can accumulate sufficient electrical charge to damage ESDs.
7. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
8. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
9. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting a foot from a carpeted floor can generate enough static electricity to damage an ESD.

2. Specifications and IC Data

2-1 Specifications

Television System:

MODEL	SYSTEM
CI	PAL-I (UHF)
CII	PAL-I (VHF/UHF)
CX	PAL-B/G, SECAM-B/G
CK	PAL-B/G, D/K, SECAM-B/G, D/K
CW	PAL-B/G, D/K, SECAM-B/G, D/K, NT 4.43
CS	PAL-B/G, D/K, SECAM-B/G, D/K, NT4.43, NT3.58

Channels:

System Band	PAL/SECAM- B/G,I	PAL, SECAM- D/K	SECAM-K1, PAL-D	NTSC - M
VHF	2 - 12	1 - 13	2 - 9	2 - 13
UHF	21 - 69	21 - 69	13 - 57	14-69

Intermediate Frequencies (MHz) :

SYSTEM IF Carrier Frequency	PAL/ SECAM- B/G	PAL/SECAM-D/K SECAM-K1	PAL - I	NTSC - M
Picture IF Carrier	38.90	38.90	38.90	38.90
Sound IF Carrier	33.40	32.40	32.90	34.40
Color Sub Carrier	34.47	34.47	34.47	35.32

Picture Tube:

14 Inch	A34KQV42X	Quick start, in-line-gun, Black stripe, 90° degree deflection
20 Inch	A48KRD82X(H)	
21 Inch	A51KQJ63X	
21 Flat	A51QDX993X	

Power Requirements: AC 160~300V, 50/60Hz

Antenna Input Impedance: VHF, UHF : Telescopic dipole antenna (75 ohm unbalanced type)

Speaker Impedance 8 ohm, 7W+7W (MAX)

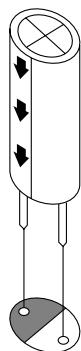
2-2 IC Line Up

Table 2-1 IC Line-Up

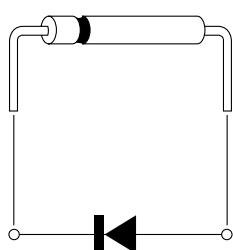
Loc. No	Specification	Description	Remark
HC101	PAP103	IF PRE-AMP	
IC201S	SPM802ER	TTX, English/Croatian/Romanian/Hungarian/Polish/Czech/ Bulgarian/Russian/Portugal	Philips
	SPM802ERN	W/O TTX, English/Croatian/Romanian/Hungarian/Polish/Czech/ Bulgarian/Russian/Portugal	
IC301	LA7840	VERTICAL OUTPUT	Sanyo
IC501	TDA6107Q	RGB DRIVE AMP	Philips
IC601	TDA7266S	SOUND-AMP (3W x 1CH or 3W x 2CH or 5W x 2CH)	
IC801S	KA500765R	POWER IC (STR)	
IC802	KA7632	CUSTOM REGULATOR (5V, 8V, 3.3V)	
IC902	24C08/KS28C040	EEPROM	
PC801S	TCET1108 / LTV817B	PHOTO COUPLER	
IC101	U4468B	SIF - IC	TEMIC

2-3 Semiconductor Base Diagrams

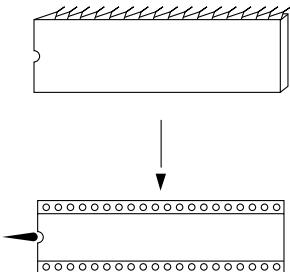
ELECTROLYTIC-CONDENSER



DIODE

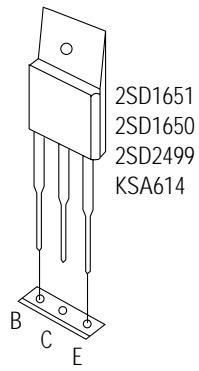


IC



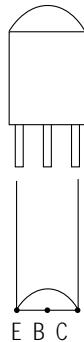
SPM-802ERN(Pin 64)
SPM-802ER(Pin 64)
X24C08P(Pin 8)
KS24C080(Pin 8)
U4468B(Pin 16)

TRANSISTOR



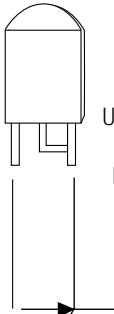
2SD1651
2SD1650
2SD2499
KSA614

TRANSISTOR



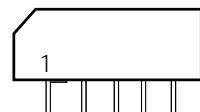
KSC815-Y
KSA539-Y
BC548
KTC9014

IC



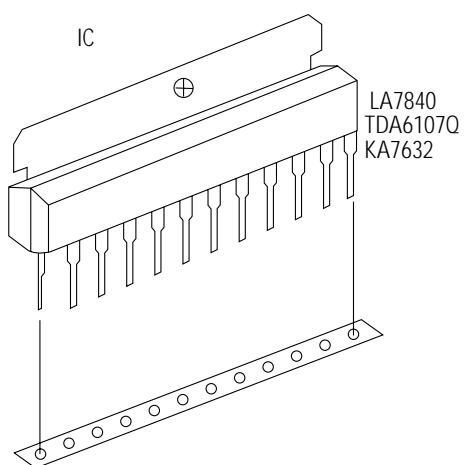
UPC574J
or
KA33V

SAW-FILTER



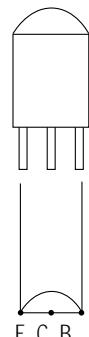
G3956M
K9260M

IC



LA7840
TDA6107Q
KA7632

TRANSISTOR

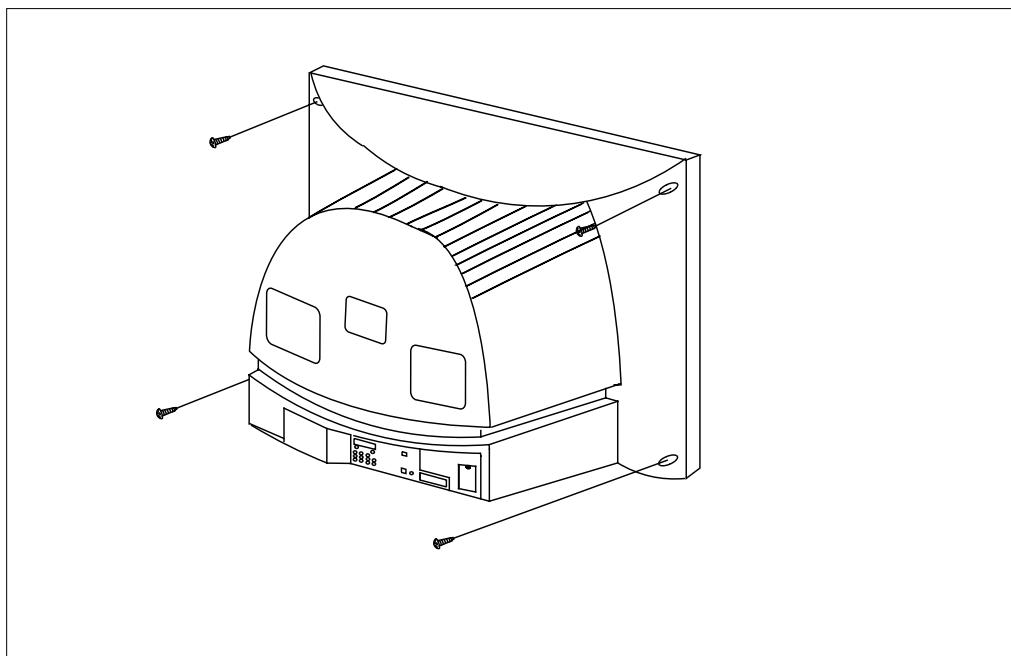


KSR1012
KSR1010
KSR2010
KTD863-Y
KSC2331-Y

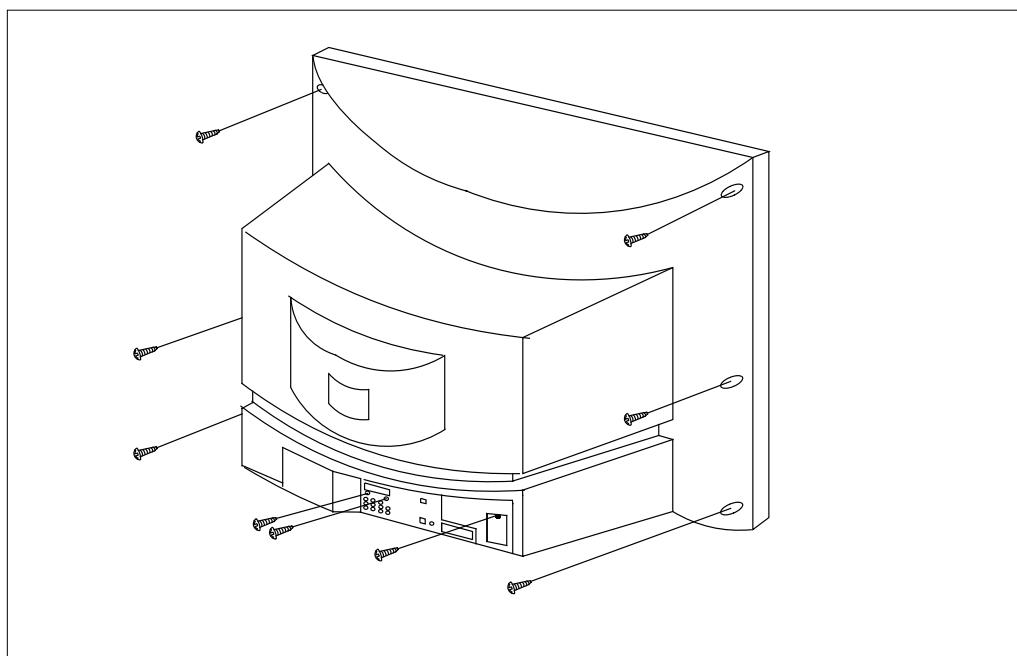
MEMO

3. Disassembly and Reassembly

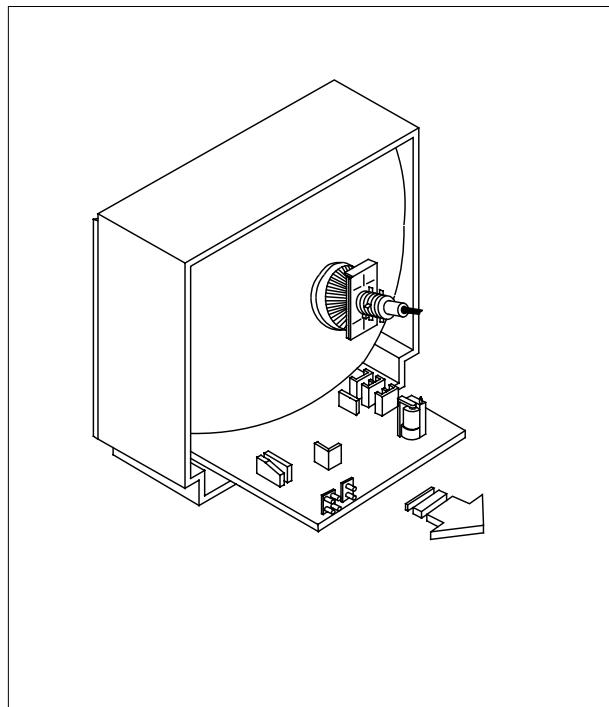
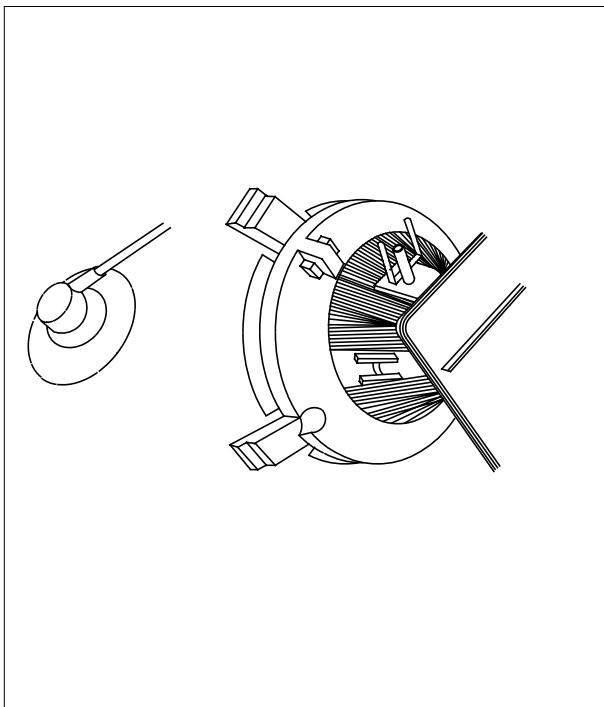
3-1 Back Cover Removal



1. After removing the screws, press the tension rib and pull the cabinet backwards.
2. To reassemble, press the tension rib (see diagram).



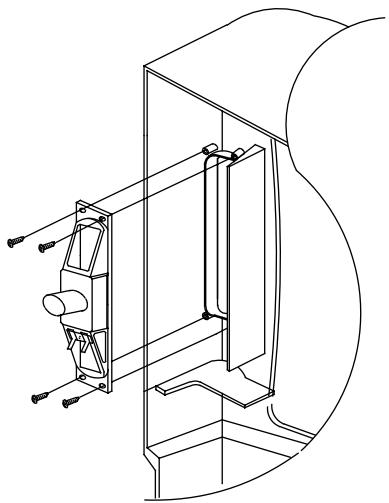
3-2 Main Board Removal



1. Separate the socket board from the CRT neck.
2. Remove the Anode Cap from the CRT.
3. Remove the main board by pulling it with both hands.

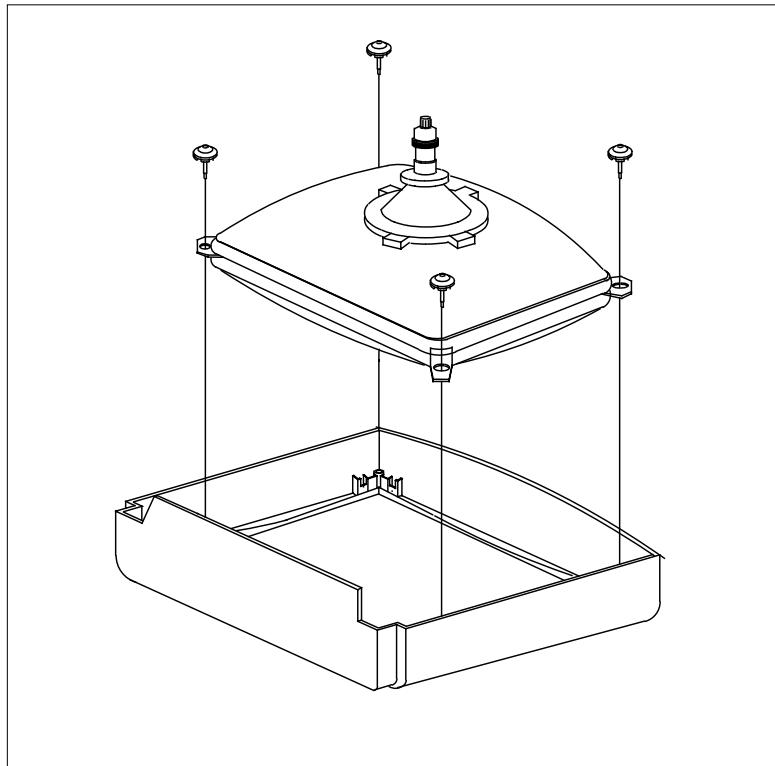
Warning: The FBT is charged with high voltage.
Before removing the Anode Cap, discharge the voltage
through one of the heat sinks on the main board.

3-3 Speaker Removal



1. Remove the speaker by pressing the tension rib.

3-4 CRT Removal



1. Spread a soft mat on the floor. Place the TV set face down.
2. Remove the 4 nuts mounting the CRT to the front cabinet. Lift the CRT.
3. Caution: Because of the high vacuum and large surface area of the picture tube, be careful while handling it: (1) Always lift the picture tube by grasping it firmly around the faceplate, (2) Never lift the tube by its neck. (3) Do not scratch the picture tube or apply excessive pressure. Fractures of the glass may cause an implosion.

4. Alignment and Adjustments

4-1 Preadjustment

4-1-1 Factory Mode

1. Do not attempt these adjustments in the Video Mode.
2. The Factory Mode adjustments are necessary when either the EEPROM (IC902) or the CRT is replaced.
3. Do not tamper with the "Adjustment" screen of the Factory Mode menu. This screen is intended only for factory use.

4-1-2 When EEPROM (IC902) Is Replaced

1. When IC902 is replaced all adjustment data revert to initial values. It is necessary to re-program this data.
2. After IC902 is replaced, warm up the TV for 10 seconds.

4-1-3 When CRT Is Replaced

1. Make the following adjustments AFTER setting up after setting up purity and convergence :

White Balance
Sub-Brightness
Vertical Center
Vertical Size
Horizontal Size
Fail Safe (This adjustment must be the last step).

2. If the EEPROM or CRT is replaced, set PVA to 40 (factory mode) and set SC as follows.

4-2 Factory/Service Mode

4-2-1 Procedure for the "Adjustment" Mode

1. This mode uses the standard remote control. The Service Mode is activated by entering the following remote-control sequence :
 - (1) DISPLAY→FACTORY.
 - (2) STAND-BY→DISPLAY→MENU→MUTE →POWER ON.
2. The "SERVICE (FACTORY)" message will be displayed. The Service Mode has three components: ADJUST, OPTION,OPTION1,G2 Adjust and Reset.
3. Access the Adjustment Mode by pressing the "VOLUME" keys (Up or Down). The adjustment parameters are listed in the accompanying table, and selected by pressing the CHANNEL keys (\blacktriangle , \blacktriangledown).

4. Selection sequences for the all system:

DOWN or UP key:

AGC>SCT>SBT>BLR>BLB>RG>GG>BG>
VSL>VS>VA>HS>SC>CDL>STT>AKB>
PDL>NDL>PSR>NSR>VOL>LCO>TXP>
MVOL>FMWS>AGCS>OMD>SCL>PWL>
AGN>PEK>ACL>FCO>SCBT>SSP>PSNS

5. The VOLUME keys increase or decrease the adjustment values (stored in the non-volatile memory) when Adjustment Mode is cancelled.
6. Cancel the Adjustment Mode by re-pressing the "FACTORY" or "Power OFF" keys.

4-2-2 Main Adjustment Parameter

OSD	FUNCTION	RANGE	INITIAL DATA	REMARK
AGC	RF AGC	0 … 63	33	
SCT	Sub contrast	0 … 23	13	
SBT	Sub brightness	0 … 23	9	
BLR	Black level offset R	0 … 63	31	
BLB	Black level offset B	0 … 63	27	
RG	White point R	0 … 63	32	
GG	White point G	0 … 63	32(FIX)	
BG	White point B	0 … 63	31	
VSL	Vertical slope	0 … 63	19	
VS	Vertical shift	0 … 63	38	
VA	Vertical amplitude	0 … 63	40(FIX)	
HS	Horizontal shift	0 … 63	30	
SC	S-correction	0 … 63	24	
CDL	Cathode drive level	0 … 15	12	
STT	Sub tint	0 … 7	7	
AKB	Black current stabilization	0 … 1	0	
PDL	PAL delay	0 … 15	1	
NDL	NTSC delay	0 … 15	10	
PSR	PAL sub color	0 … 23	15	
NSR	NTSC sub color	0 … 23	10	
VOL	Volume pre setting	0 … 63	10	
LCO	SECAM-L Vision IF	0 … 1	0	
TXP	TTX Position	0 … 15	9	
MVOL	Melody initial volume adjustment	0 … 50	10	
FMWS	Narrow-band sound PLL window selection	0 … 1	0	
AGCS	IF AGC speed	0 … 3	1	
OMD	Off-set IF demodulator	0 … 63	26	
SCL	Soft clipping level	0 … 3	1	
PWL	Peak white limiting	0 … 15	12	
AGN	FM demodulator gain	0 … 1	1	
PEK	Peaking center frequency	0 … 3	2	
ACL	Automatic color limiting	0 … 1	0	
FC0	Forced color limiting	0 … 1	0	
SCBT	Screen brightness	0 … 63	45	
SSP	Sub Sharpness gain adjustment	0 … 23	20	
PSNS	Identify sensitivity PAL/NTSC decoder	0 … 1	1	

4-2-3 Option Bytes

In the Service Mode, various can be selected via the Option Table. Example:

Option Table:XX XX XX XX

1	LNA	ON
2	SYSTEM	CZ
3	AUDIO	STEREO
4	JACK	SCART
5	ZOOM	NOR/ZOOM/16:9
6	AUTO POWER	ON
7	SBL	OFF
8	2nd SIF	ON
9	HOTEL MODE	OFF
10	BKS	ON
11	HIGH DEVIA	ON
12	HELP MENU	ON
13	TIME	ON
14	V-GUARD	OFF

4-2-4 RESET

The Reset Mode is used during factory inspection.

Function Reset:

1. Picture	Custom
2. Auto Volume	Off
3. Color System	Auto (option)
4. Sound System	D/K (option)
5. Blue Screen	Off
6. Low Noise AMP	Off (option)
7. Volume	10
8. CH. Skip	Erased
9. CH. Lock	Off
10. Timer	Off

4-3 Other Adjustments

4-3-1 General

1. Usually, a color TV needs only slight touch-up adjustment upon installation. Check the basic characteristics such as height, horizontal and vertical sync and focus.
2. The picture should have good black and white details. There should be no objectionable color shading; if color shading is present, perform the purity and convergence adjustments described below.
3. Use the specified test equipment or its equivalent.
4. Correct impedance matching is essential.
5. Avoid overload. Excessive signal from a sweep generator might overload the front-end of the TV. When inserting signal markers, do not allow the marker generator to distort test results.
6. Connect the TV only to an AC power source with voltage and frequency as specified on the backcover nameplate.
7. Do not attempt to connect or disconnect any wires while the TV is turned on. Make sure that the power cord is disconnected before replacing any parts.
8. To protect against shock hazard, use an isolation transformer.

4-3-2 Automatic Degaussing

A degaussing coil is mounted around the picture tube, so that external degaussing after moving the TV should be unnecessary. But the receiver must be properly degaussed upon installation.

The degaussing coil operates for about 1 second after the power is switched ON. If the set has been moved or turned in a different direction, disconnect its AC power for at least 30 minutes.

If the chassis or parts of the cabinet become magnetized, poor color purity will result. If this happens, use an external degaussing coil. Slowly move the degaussing coil around the faceplate of the picture tube and the sides and front of the receiver. Slowly withdraw the coil to a distance of about 6 feet before removing power.

4-3-3 High Voltage Check

CAUTION: There is no high voltage adjustment on this chassis. The B+ power supply must be set to +125 volts (Full color bar input and normal picture level).

1. Connect a digital voltmeter to the second anode of the picture tube.
2. Turn on the TV. Set the Brightness and Contrast controls to minimum (zero beam current).
3. The high voltage should not exceed 27.5KV.
4. Adjust the Brightness and contrast controls to both extremes. Ensure that the high voltage does not exceed 27.5KV under any conditions.

4-3-4 FOCUS Adjustment

1. Input a black and white signal.
2. Adjust the tuning control for the clearest picture.
3. Adjust the FOCUS control for well defined scanning lines in the center area of the screen.

4-3-5 Cathode Voltage Adjustment (Screen Adjust)

1. Input a gray scale pattern.

(Use a pattern generator,PM5518)

2. Enter "Adjustment" Mode:
 - (1) DISPLAY → FACTORY
 - (2) STAND-BY → DISAPALY → MENU

→MUTE →POWER ON
3. Select "G2 adjust" by pressing channel key ▲ or ▼
4. Enter "G2 adjust" by pressing channel key ◀ or ▶
5. Adjust he screen Vr (On the FBT),so that OSD becomes "SCREEN ADJUST:OK"

4-3-6 Purity Adjustment

1. Warm up the receiver for at least 20 minutes.
2. Plug in the CRT deflection yoke and tighten the clamp screw.
3. Plug the convergence yoke into the CRT and set in as shown in Fig. 4-2.
4. Input a black and white signal.
5. Fully demagnetize the receiver by applying an external degaussing coil.
6. Turn the CONTRAST and BRIGHTNESS controls to maximum.
7. Loosen the clamp screw holding the yoke. Slide the yoke backward or forward to provide vertical green belt. (Fig. 4-3).
8. Tighten the convergence yoke.
9. Slowly move the deflection yoke forward, and adjust for the best overall green screen.
10. Temporarily tighten the deflection yoke.
11. Produce blue and red rasters by adjusting the low-light controls. Check for good purity in each field.
12. Tighten the deflection yoke.

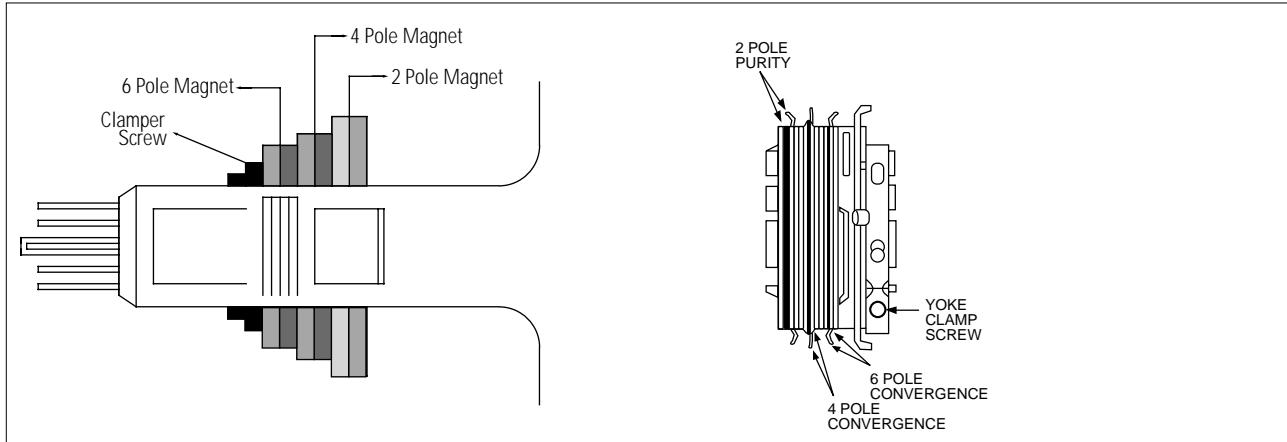


Fig. 4-2 Convergence Magnet Assembly

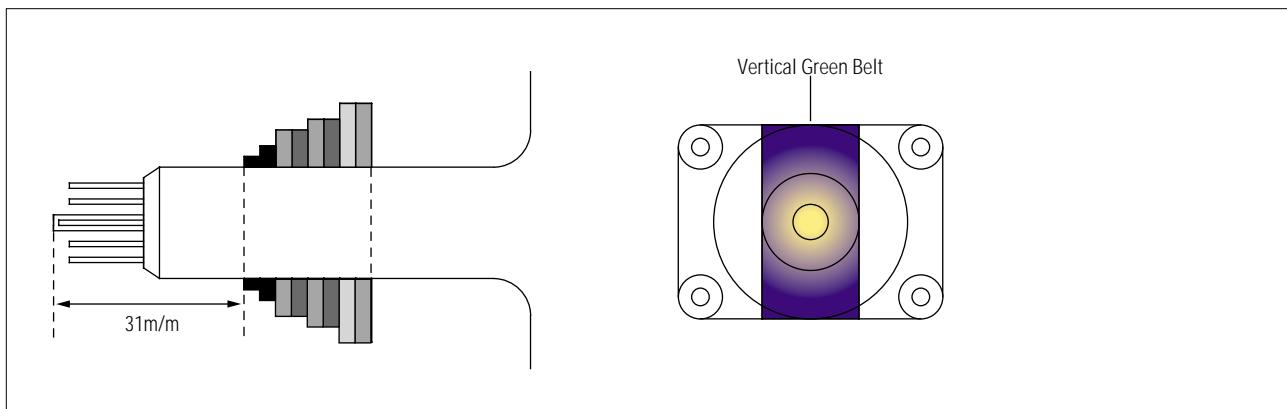


Fig. 4-3 Center Convergence Adjustment

4-3-7 White Balance Adjustment

(a) Set up

1. Warm up the TV for at least 30 minutes in the Aging Mode (OSD White). This mode is displayed by entering the following sequence:

DISPLAY → FACTORY → FACTORY

2. Input a Toshiba pattern.

(b) Low-Light Adjustment

1. Set SBT to 2.5 ± 0.5 fL in the Factory Service Mode with using CA100. See Fig. 4-4 ②.
2. Adjust RG,BG so that the levels are suitable to each local area.

(c) High-Light Adjustment

1. 50 21"flat in the Factory Service Mode with using CA100. See Fig. 4-4 ①.

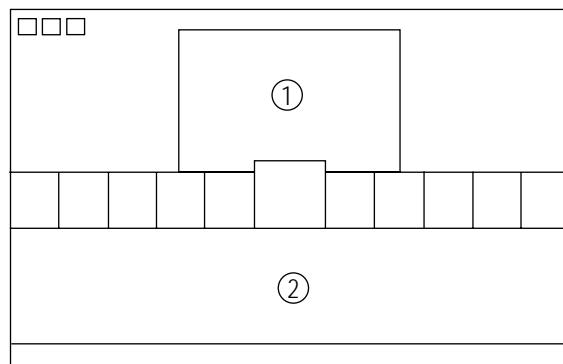


Fig. 4-4

4-3-8 Center Convergence Adjustment

1. Warm up the receiver for at least 20 minutes.
2. Adjust the two tabs of the 4 pole magnets to change the angle between them. Superimpose the red and blue vertical lines in the center area of the screen.
3. Adjust the Brightness and Contrast controls for a well defined picture.
4. Adjust the two-tab pairs of the 4 pole magnets, and change the angle between them. Superimpose the red and the blue vertical lines in the center area of the screen.
5. Turn the both tabs at the same time, keeping the angle constant, and superimpose the red and blue horizontal line in the center of the screen.
6. Adjust the two-tab pairs of the 6-pole magnets to superimpose the red and blue line onto the green. (Changing the angle affects the vertical lines, and rotating both magnets affects the horizontal lines.)
7. Repeat adjustments 2~6, if necessary.
8. Since the 4-pole magnets and 6-pole magnets interact, the dot movement is complex (Fig. 4-5).

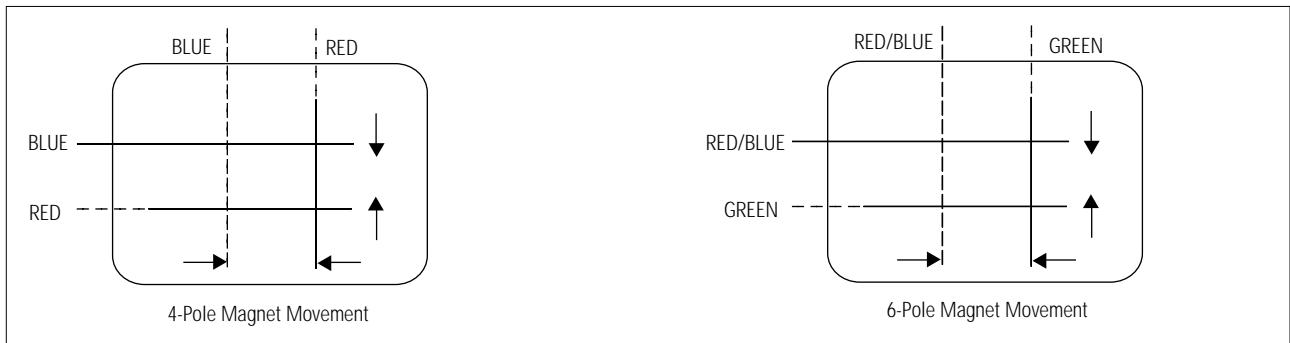


Fig. 4-5 Center Convergence Adjustment

4-3-9 RF AGC Adjustment

Set the AGC data to 33 (Factory Mode).

4-3-10 Sub-Color Adjustment

Set $\frac{\text{PSR}}{\text{NSR}}$ data to $\frac{2}{5}$ (Factory Mode).

4-3-11 Geometry Adjustment

VS → VSL → HS

1. Input a lion head pattern (in the PAL channel).
2. Set the SC (S-Correction) as follows : 24(21"flat) and VA 40 so that the lion head circle becomes oval.
3. Adjust with VSL (Vertical-Slope) so that the bottom margin of the picture is 4.

6. Adjust HS (using the width coil) so that the left and right margins of the picture are 5.

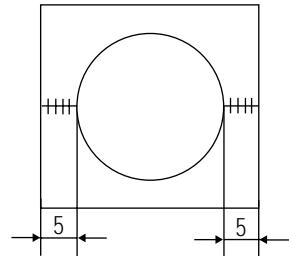


Fig. 4-9

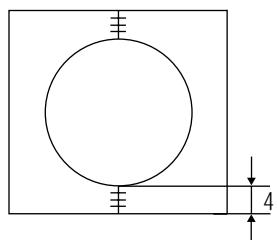


Fig. 4-7

4. Adjust with VS (Vertical shift) so that the top margin of the picture is 4.

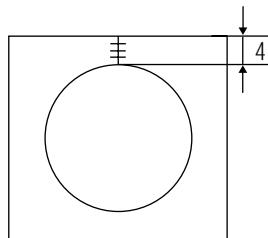
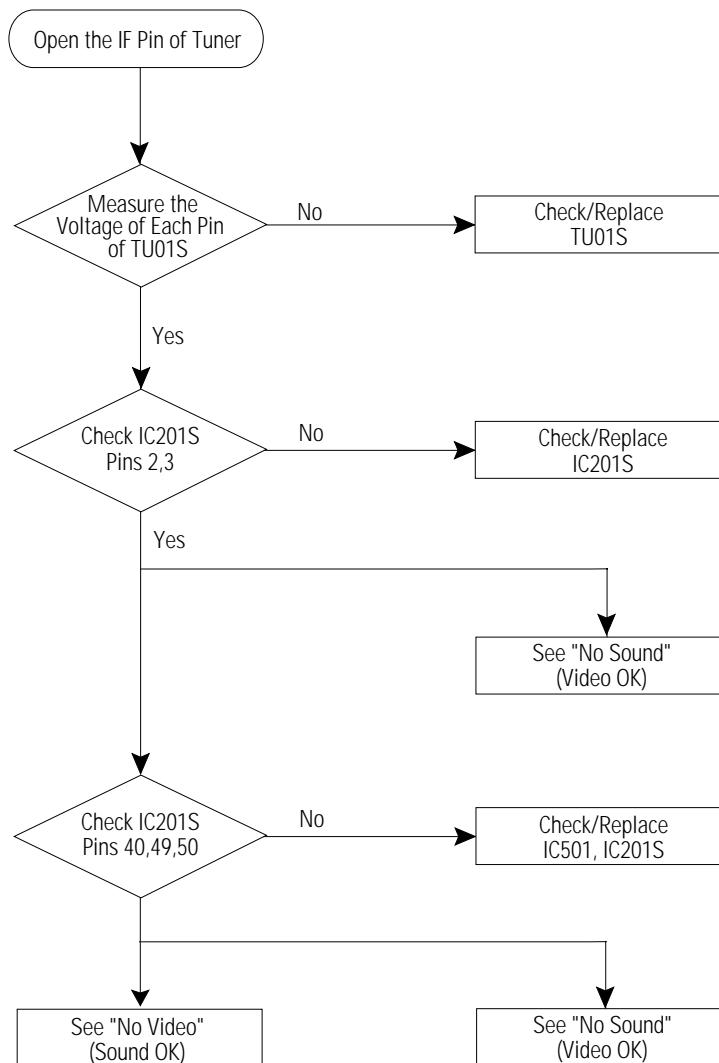


Fig. 4-8

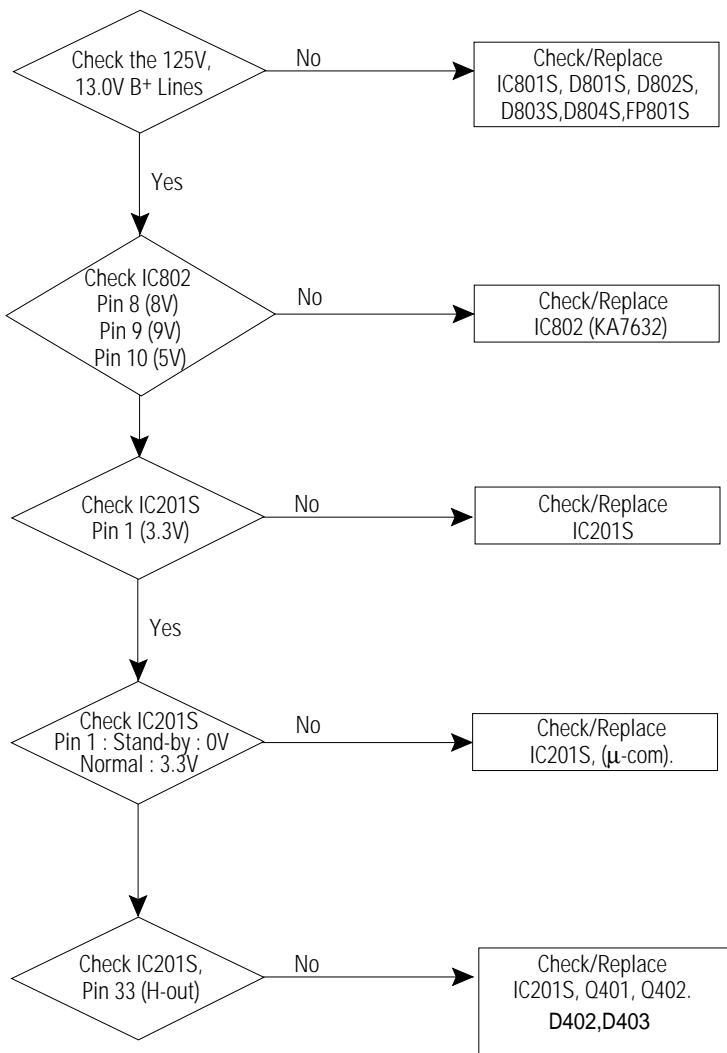
5. Adjust with HS (Horizontal Shift) so that the lion-head pattern and CRT centers are aligned.

5. Troubleshooting

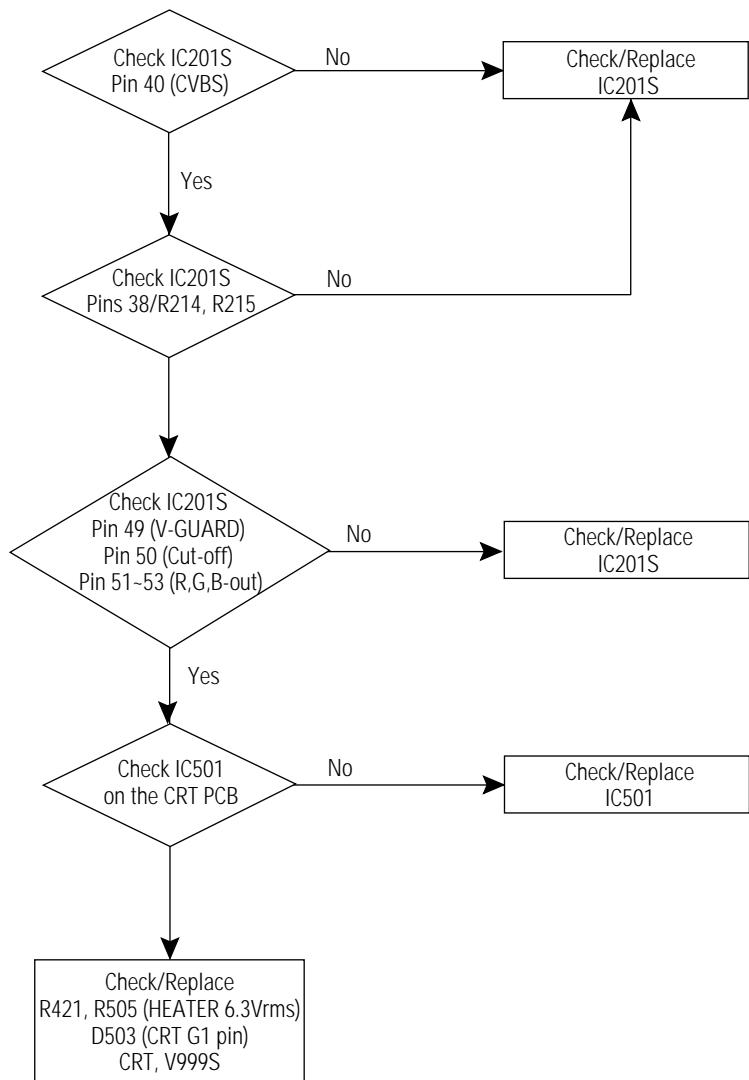
5-1 No Video (Raster On, No Sound)



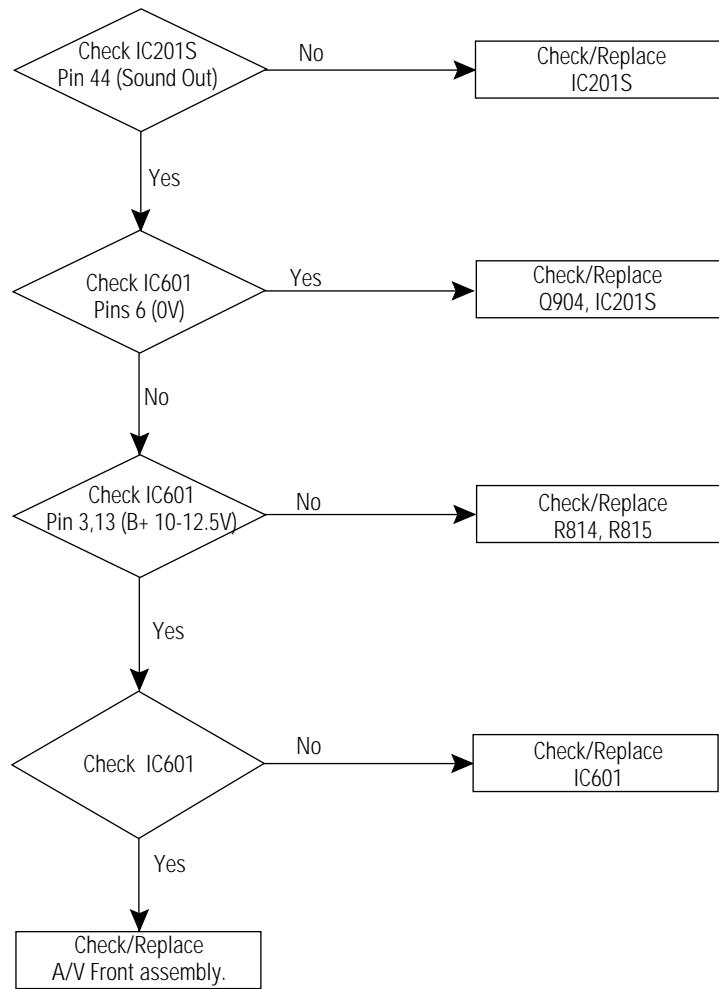
5-2 No Power



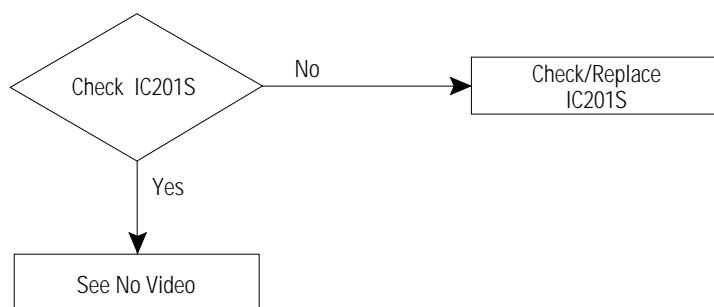
5-3 No Video (Sound OK)



5-4 No Sound (Video OK)



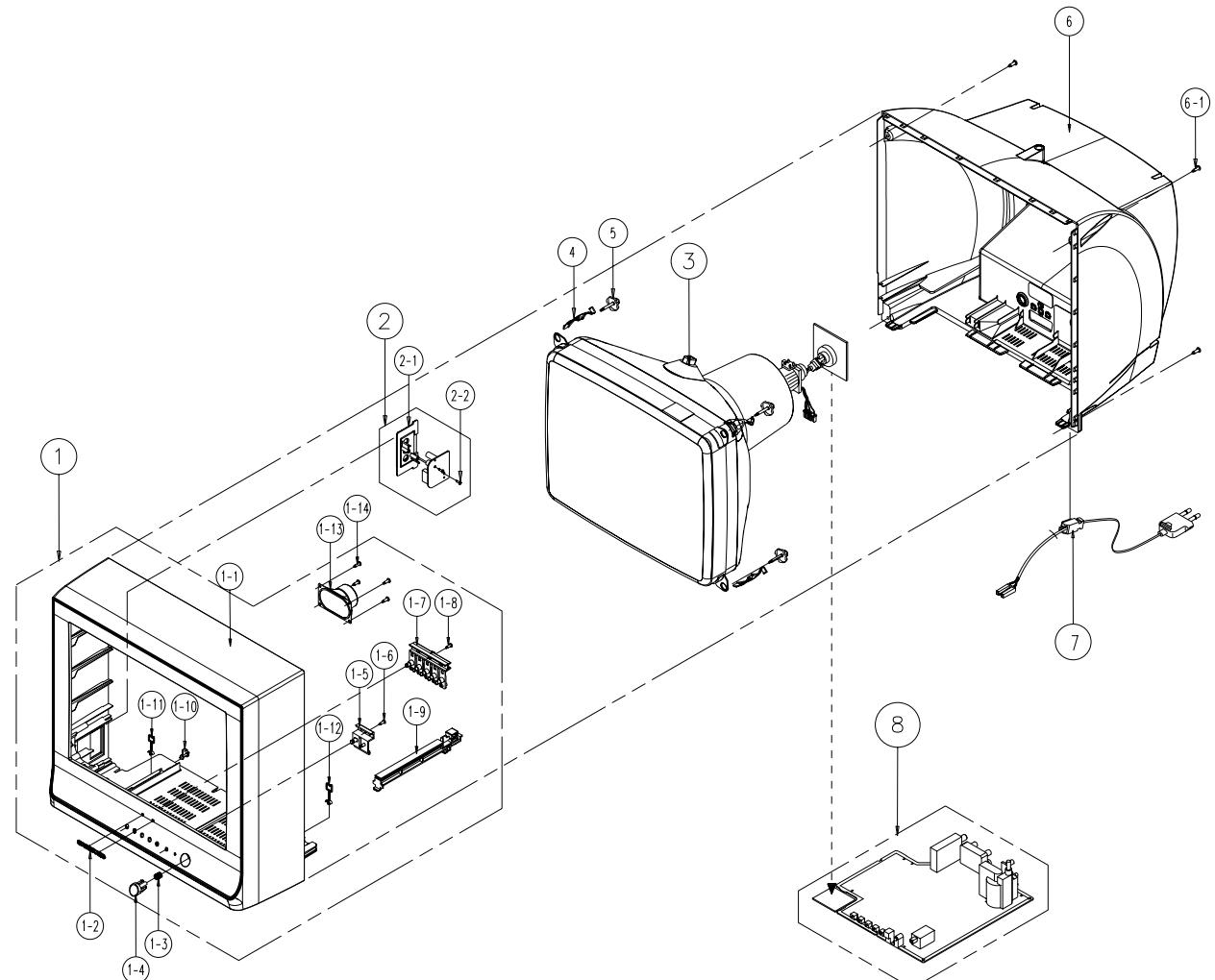
5-5 No TTX



6. Exploded View & Parts List

6-1 CB21N112TZXEC

You can search for the updated part code through ITSELF web site.
URL : <http://itself.sec.samsung.co.kr>



No.	Code No	Description Specification	Q'ty	Remark	S.N.A
1	AA96-02056A	ASSY COVER P-FRONT;21N11,HIPS HB,G4309,S	1	M0003	
1-1	AA64-03996A	CABINET FRONT;21N11,HIPS,HB,G4309,SEH	1	T0003	S.N.A
1-2	AA64-70123B	BADGE-BRAND;ALL,AL,8.5,L50,BLK,SILVER,SA	1	T0057	S.N.A
1-3	AA61-60003J	SPRING ETC-CS;-,SUS304,-,-,OD6,N7,OD6,-,	1	CIS7	S.N.A
1-4	AA64-03654A	KNOB POWER;17N11,ABS,HB,G4309,SVM3012	1	T0023	S.N.A
1-5	AA64-03652A	WINDOW-RMC LED;17N11,PC,CLEAR	1	T0299	S.N.A
1-6	6003-001019	SCREW-TAPITTE;RH,+,B,M4,L12,ZPC(BLK),SWR	4	T0081	S.N.A
1-7	6003-001019	SCREW-TAPITTE;RH,+,B,M4,L12,ZPC(BLK),SWR	1	T0081	S.N.A
1-8	AA64-03653A	KNOB CONTROL;17N11,ABS,HB,G4309,SVM3012	1	T0022	S.N.A
1-9	HA61-00711C	HOLDER-PCB;29K8,HIPS,HB,GRY	1	T0245	S.N.A
1-10	AA61-40113A	STOPPER-PCB;501H,HIPS,-,-,HB,NTR,-	1	T0607	S.N.A
1-11	AA65-00011C	CLAMPER CORE-WIRE;ALL MODEL, NYLON 66,V2,	1		S.N.A
1-12	AA65-30105A	CLAMPER CORE-WIRE;ALL MODEL, NYLON 66,V2,	1		S.N.A
1-13	3001-001039	SPEAKER;3W,160HM,90DB,180HZ	1	T0082	
1-14	6003-000335	SCREW-TAPITTE;RH,+,2S,M3,L8,ZPC(YEL),SWR	1	T0081	S.N.A
2	AA94-13475A	ASSY PCB MISC-SIDE A/V;CS15N11,KS1A	1	T0091	S.N.A
2-1	AA61-01354A	HOLDER-AV;15N11(SEH),HIPS HB,G4309,SV012	1	T0010	S.N.A
2-2	6003-001023	SCREW-TAPITTE;RWH,+,B,M3,L10,ZPC(YEL),SW	2	T0081	S.N.A
3	AA03-00414A	CRT COLOR;A51QDX993X011,380MG,2.47MH,18M	1	T0063	
4	AA65-00009B	CLAMPER CORE-D,COIL;21A8, NYLON 66,V0,-,-	4	T0527	S.N.A
5	AA60-10050R	SCREW-ASSY;-,SWRCH18A,M5,L31.5,HH,+,WC,-	4	SC016	S.N.A
6	AA64-03924A	CABINET BACK;21N11[SEH],HIPS,HB,G4309	1	T0015	
6-1	AA60-10050T	SCREW-TAPPING;-,SWRCH18A,M4,L20,RH,+,2S,	4	T0081	S.N.A
7	AA39-10001G	CBF POWER CORD;-,KKP-419C,KLCE-2F,2.286m	1	T0077	
8	AA94-14389A	ASSY PCB MAIN;CB21N112TZXEC,KS9A,SDIHU,	1	M0014	

You can search for the updated part code through ITSELF web site.
URL : <http://itself.sec.samsung.co.kr>

7. Electrical Parts List

7-1 CB21N112TZXEC

Level	Loc. No.	Code No.	Description ; Specification	Remark	Level	Loc. No.	Code No.	Description ; Specification	Remark
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ASSY COVER FRONT

1	M0001	AA90-05117A	ASSY COVER FRONT;21N11,KS9A,SEH	S.N.A
.2	CCM1	AA60-100500	SCREW-MACHINE:-,SWRCH18A,M5,L26.5,HH,+/W	S.N.A
.2	T0081	6002-000515	SCREW-TAPPING:RH,+,2,M4,L15,ZPC(WHT),SWR	S.N.A
.2	M0003	AA96-02056A	ASSY COVER P-FRONT;21N11,HIPS HB,G4309,S	S.N.A
.3	T0081	6003-001019	SCREW-TAPITTE:RH,+,B,M4,L12,ZPC(BLK),SWR	S.N.A
.3	T0081	6002-000515	SCREW-TAPPING:RH,+,2,M4,L15,ZPC(WHT),SWR	S.N.A
.3	T0081	6002-000515	SCREW-TAPPING:RH,+,2,M4,L15,ZPC(WHT),SWR	S.N.A
.3	T0245	HA61-00711C	HOLDER-PCB:29K8,HIPS,HB,GRY	S.N.A
.4		HA83-00006A	LP-RESIN HIPS;BASF495F,NTR,HB	S.N.A
.4		HA83-00011A	LP-RESIN;M BATCH,WILSON 6007-GY-60,GRY	S.N.A
.3	CIS7	AA61-60003J	SPRING ETC-CS-,SUS304,-,OD6,N7,OD6,-,	S.N.A
.3	T0299	AA64-03652A	WINDOW-RMC LED;17N11,PC,CLEAR	S.N.A
.4		HA83-00010A	LP-RESIN;OROGLAS,VM-100 ZHN 2	S.N.A
.3	T0022	AA64-03653A	KNOB CONTROL;17N11,ABS,HB,G4309,SVM3012	S.N.A
.4		HA83-00006A	LP-RESIN HIPS;BASF495F,NTR,HB	S.N.A
.4		HA83-00011A	LP-RESIN;M BATCH,WILSON 6007-GY-60,GRY	S.N.A
.4		HA83-00040B	LP-MARKING PAINT;METALLIC SILVER,SV-012	S.N.A
.3	T0023	AA64-03654A	KNOB POWER;17N11,ABS,HB,G4309,SVM3012	S.N.A
.4		HA83-00006A	LP-RESIN HIPS;BASF495F,NTR,HB	S.N.A
.4		HA83-00011A	LP-RESIN;M BATCH,WILSON 6007-GY-60,GRY	S.N.A
.4		HA83-00040B	LP-MARKING PAINT;METALLIC SILVER,SV-012	S.N.A
.3	T0003	AA64-03969A	CABINET FRONT;21N11,HIPS,HB,G4309,SEH	S.N.A
.4		HA83-00040B	LP-MARKING PAINT;METALLIC SILVER,SV-012	S.N.A
.4		AA81-00106A	A/S-MARKING PAINT;P432U,DARK GREY,TPC	S.N.A
.4		HA83-00006A	LP-RESIN HIPS;BASF495F,NTR,HB	S.N.A
.4		HA83-00011A	LP-RESIN;M BATCH,WILSON 6007-GY-60,GRY	S.N.A
.3	T0057	AA64-70123B	BADGE-BRAND:ALL,AL8.5,L50,BLK,SILVER,SA	S.N.A
.3		AA65-30105A	CLAMPER CORE-WIRE;ALL MODEL,NYLON 66,V2,	S.N.A
.3	T0082	3001-001039	SPEAKER;3W,160HM,90DB,180HZ	S.N.A
.3	T0245	AA39-20501	LEAD CONNECTOR-ASSY,(3)P,700MM,67096-0	S.N.A
.3		AA61-40010A	BOSS-WING;-,HIPS,-,NTR,HB	S.N.A
.4		HA83-00006A	LP-RESIN HIPS;BASF495F,NTR,HB	S.N.A
.3	BB	HA83-00049A	LP-ADHESIVE-HM;12MM,NTR	S.N.A
.3	BOSS	HA83-00049A	LP-ADHESIVE-HM;12MM,NTR	S.N.A

ASSY COVER REAR

1	M0002	AA90-05119A	ASSY COVER REAR;21N11,KS9A,SEH	S.N.A
.2	T0015	AA64-03924A	CABINET BACK;21N11[SEH],HIPS,HB,G4309	S.N.A
.2	T0214	AA65-30008A	CLAMPER CORE-CORD;-,PE,HB,-,BLK,-	S.N.A
.2		AA65-30009A	CLAMPER CORE-FBT;-,ABS,VO,-,BLK,-	S.N.A

ASSY P/MATERIAL

1		AA92-08953A	ASSY P/MATERIAL;21N11	S.N.A
.2		6902-000006	BAG PE;HDPE/NITRON/HDPE,T0.02/T0.5/T0	S.N.A
.2	T0214	AA60-40006A	PIN-STAPLE;AUTO,33X17.8X2.4,H18,33X17.8X	S.N.A
.3		HA83-00058A	LP-RESIN-EPS;CHEIL SF-301V,WHT	S.N.A
.2	acc-ba	HA83-00047A	LP-TAPEACETATE;T0.1MM,W20MM,L200MM	S.N.A

ASSY BOX

1		AA92-08952C	ASSY BOX;CS21N11MJZXBWT	S.N.A
.2		HA83-00046A	LP-TAPE INK;WIDTH 105 MM	S.N.A

ASSY ACCESSORY

1	M0045	AA92-09443A	ASSY ACCESSORY;21N11,XEC,MONO,TXT	S.N.A
.2	T0074	AA59-00312B	REMOCON;DEEP IMPACT,TM75,36,TTX,EX,PAL	S.N.A
.2		HA83-00047A	LP-TAPEACETATE;T0.1MM,W20MM,L200MM	S.N.A

ASSY CPT

1	T0521	AA91-07665A	ASSY CPT;CS21M16MHZXBWT,21SDI FLAT,OMG	S.N.A
.2	T0089	AA27-00256A	COIL DEGAUSSING;21IHCH,10%,35TS,4.50HM,	S.N.A
.2	T0527	AA65-0009B	CLAMPER CORE-D,COIL;21A8,NYLON 66V0,-,	S.N.A
.2	T0063	AA03-00414A	CRT COLOR;A51QD993X011,380MG,2.47MH,18M	S.N.A
.2		AA98-70030A	ASSY TBC WIRE;P;DPTV,21,AA98-70014C,1P	S.N.A
.2		AA63-10002A	BAND-TIE;NYLON66V2,L100,NTR	S.N.A

ASSY CHASSIS

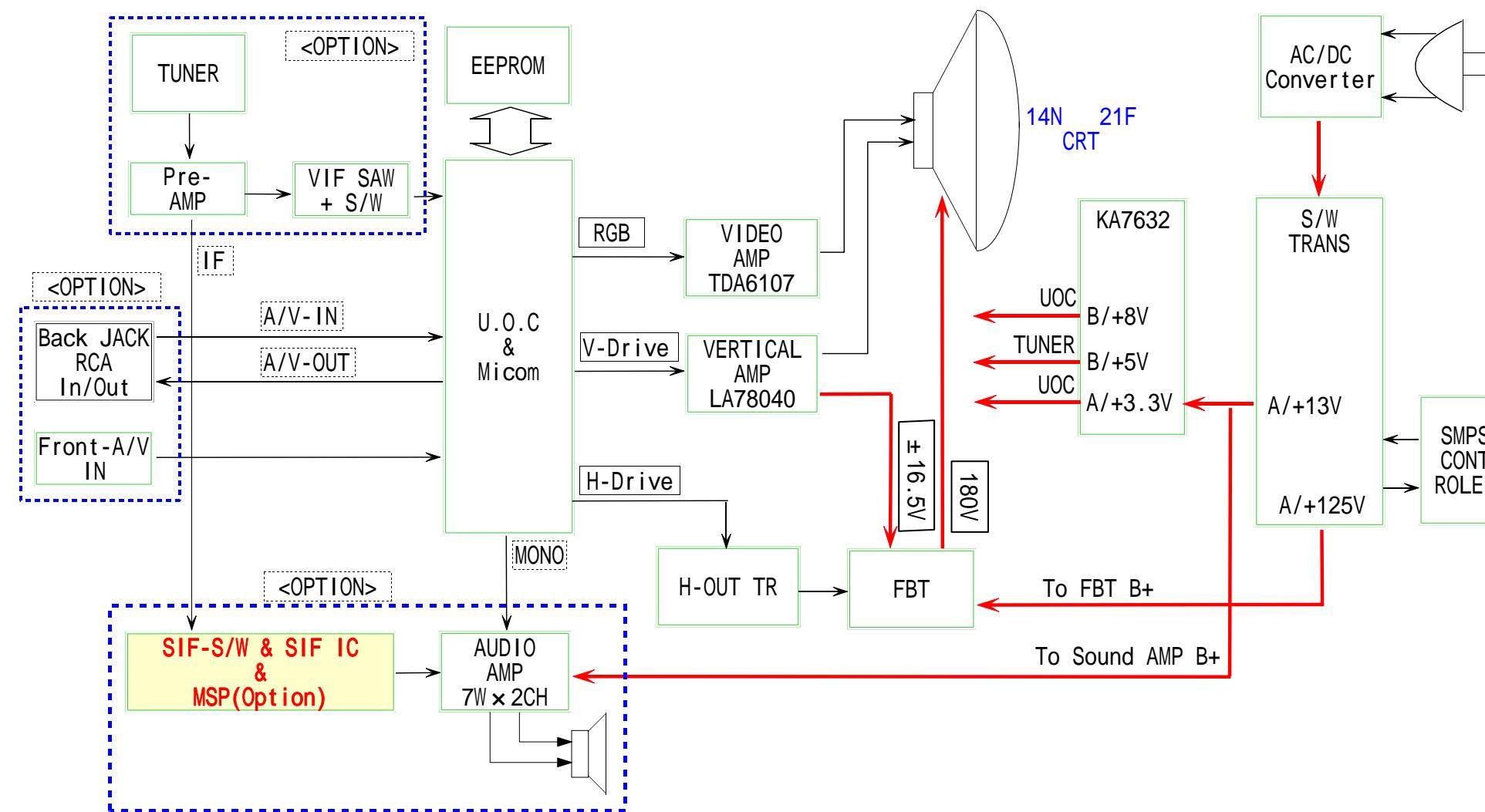
1	M0017	AA91-08048A	ASSY CHASSIS;CB21N112TZXEC,SDIHU,MST,EL	S.N.A
.2	T0091	AA94-13475A	ASSY PCB MISC-SIDE A/V;CS15N11,KS1A	S.N.A
.3	JE601	3722-000144	JACK-PHONE;6P/5C,3.6P,MBAG,BLACK,-	S.N.A
.3	JAT02	3722-001342	JACK-PIN;1P,3.4MM,NI,YEL,-	S.N.A
.3	JAT01	3722-001343	JACK-PIN;1P,3.4MM,NI,WHT,-	S.N.A
.3	T0245	AA39-20112E	LEAD CONNECTOR-ASSY;9P,300,YBNH025-09,6	S.N.A
.3		AA97-14400A	ASSY AUTO;CTV	S.N.A
.4	R075	2001-001153	R-CARBON(S);470HM,5%,1/2W,AA,TP,2.4X6.4M	S.N.A
.4	C689	2202-000121	C-CERAMIC,MLC-AXIAL;100pF,10%,50V,Y5P,TP	S.N.A
.4	C689	2202-000222	C-CERAMIC,MLC-AXIAL;3.3nF,20%,16V,Y5P,TP	S.N.A
.4	RE04	2701-000114	INDUCTOR-AXIAL;10UH,10%,2534	S.N.A
.4	LE01	2701-00159	INDUCTOR-AXIAL;22UH,10%,4298	S.N.A
.4	0	AA41-00956A	PCB-SIDE A/V;CS17N11,FR-1,1L,B,245X245,K	S.N.A
.4	C701	2401-000025	C-AL;100uF,20%,16V,GP,TP,6.3x11.5	S.N.A
.3		0202-000166	SOLDER-WIRE FLUX;-,RS60S,D1,2,63Sn/37Pb,	S.N.A
.3	T0010	AA61-01354A	HOLDER-AV;15N11(SEH),HIPS HB,G4309,SV012	S.N.A
.2	M0014	AA94-14389A	ASSY PCB MAIN;CB21N112TZXEC,KS9A,SDIHU,	S.N.A
.3		0202-001366	SOLDER-WIRE FLUX;-,RS60S,D1,2,63Sn/37Pb,	S.N.A
.3	T0083	0402-001230	DIODE-RECTIFIER;FMG-G2CS,1000V,3A,DO-41,	S.N.A
.3	T0083	0402-001599	DIODE-RECTIFIER;DGP30L1500,3A,DO-201AD(	S.N.A
.3	T0090	0502-001160	TR-POWER;2SD2499,NPN,50000mW,TO-3P,BK,8	S.N.A
.3	IC112	1103-001106	IC-EEPROM;24C080,1Kx8Bit,DP8P9,6x8 4m	S.N.A
.3	NT802S	1404-001045	THERMISTOR-NTC;4.7ohm,15%,2900K,35.0mW/T	S.N.A
.3	P803T	1404-001265	THERMISTOR-PTC;4.50HM/1000HM,+30/-20%,22	S.N.A
.3	C598	2201-000446	C-CERAMIC,DISC;3.3nF,20%,400V,Y5U,BK,15X	S.N.A
.3	CX801S	2306-000318	C-FILM,LEAD-PPF;220NF,20%,250V,BK,-,22.5	S.N.A
.3	CR402S	2306-000350	C-FILM,LEAD-PPF;270nF,5%,400V,BK,26X18.5	S.N.A
.3	CR410S	2303-001015	C-FILM,LEAD-PPF;5.5nF,5%,1.6kV,BK,29X9.5	S.N.A
.3	C701	2401-002219	C-AL;220uF,20%,400V,GP,BK,25x40,10	S.N.A
.3	SF101S	2904-001070	FILTER-SEAW AV;38.9MHz,SIP5K,TP14.6dB,B/	S.N.A
.3	SW801S	3403-001134	SWITCH-PUSH;250V,5A,DPST,ON-OFF,-	S.N.A
.3	V999S	3704-001105	SOCKET-CRT;11P,20P,26.5P,NI,-	S.N.A
.3	JST01	3722-000183	JACK-SCART;21P,4mm,SN,BLK,NO	S.N.A
.3	T0119	AA09-00418A	IC MICOM;TDA9351PS/N2/3,SPM-802EW5,64P	S.N.A
.3	T801S	AA26-00134A	TRANS SWITCHING;CS21S5T,160V-260V,PM2 P	S.N.A
.3	T0616	AA26-00213A	TRANS FBT;1142,4001A,CPTTV,3.9mh,FERRITE	S.N.A
.3	T401	AA26-50001B	TRANS-HORIZ DRIVE;-,7.1mH,102uH	S.N.A
.3	T0296	AA27-00122A	COIL LINEARITY;90uH,90uH,1.8DR10x10,7.5	S.N.A
.3	LX801S	AA29-30001B	FILTER LINE NOISE;-,27MHz,ST,	S.N.A
.3	D0254	AA32-00015A	MODULE REMOCON;FRP-3521H31,38KHZ,940MM,M	S.N.A
.3	T0245	AA39-20010D	LEAD CONNECTOR-ASSY;1P,400,YFH800-01,S,	S.N.A

Level	Loc. No.	Code No.	Description : Specification	Remark	Level	Loc. No.	Code No.	Description : Specification	Remark
....4	R125	2001-000472	R-CARBON:2.7KOHM,5%,1/8W,AA,TP1.8X3.2M		....4	C598	2201-000556	C-CERAMIC,DISC:0.47NF,10%,500V,Y5PTP5.	
....4	R125	2001-000472	R-CARBON:2.7KOHM,5%,1/8W,AA,TP1.8X3.2M		....4	C598	2201-000556	C-CERAMIC,DISC:0.47NF,10%,500V,Y5PTP5.	
....4	R125	2001-000472	R-CARBON:2.7KOHM,5%,1/8W,AA,TP1.8X3.2M		....4	C598	2201-000573	C-CERAMIC,DISC:0.047NF,5%,50V,COG,TP,5X3	
....4	R125	2001-000548	R-CARBON:27KOHM,5%,1/8W,AA,TP1.8X3.2M		....4	C598	2201-000599	C-CERAMIC,DISC:0.047NF,5%,50V,COG,TP,5X3	
....4	R125	2001-000563	R-CARBON:27KOHM,5%,1/8W,AA,TP1.8X3.2MM		....4	C598	2201-000639	C-CERAMIC,DISC:0.56NF,10%,500V,Y5PTP5.	
....4	R125	2001-000563	R-CARBON:27KOHM,5%,1/8W,AA,TP1.8X3.2MM		....4	C598	2201-000723	C-CERAMIC,DISC:4.7NF,20%,3KV,Y5U,TP16X5	
....4	R125	2001-000591	R-CARBON:3.3KOHM,5%,1/8W,AA,TP1.8X3.2M		....4	C598	2201-000991	C-CERAMIC,DISC:0.56NF,10%,2KV,Y5PTP7.5	
....4	R125	2001-000660	R-CARBON:33KOHM,5%,1/8W,AA,TP1.8X3.2MM		....4	C598	2201-000991	C-CERAMIC,DISC:0.56NF,10%,2KV,Y5PTP7.5	
....4	R125	2001-000734	R-CARBON:4.7KOHM,5%,1/8W,AA,TP1.8X3.2M		....4	C689	2202-000121	C-CERAMIC,MLC-AXIAL:100pf,10%,50V,Y5PTP	
....4	R125	2001-000734	R-CARBON:4.7KOHM,5%,1/8W,AA,TP1.8X3.2M		....4	C689	2202-000121	C-CERAMIC,MLC-AXIAL:100pf,10%,50V,Y5PTP	
....4	R125	2001-000739	R-CARBON:4.7MOHM,5%,1/8W,AA,TP1.8X3.2M		....4	C689	2202-000127	C-CERAMIC,MLC-AXIAL:10nf,+80-20%,25V,Y5V	
....4	R125	2001-000739	R-CARBON:4.7MOHM,5%,1/8W,AA,TP1.8X3.2M		....4	C689	2202-000127	C-CERAMIC,MLC-AXIAL:10nf,+80-20%,25V,Y5V	
....4	R125	2001-000786	R-CARBON:47KOHM,5%,1/8W,AA,TP1.8X3.2MM		....4	C689	2202-000210	C-CERAMIC,MLC-AXIAL:270pf,10%,50V,Y5PTP	
....4	R125	2001-000793	R-CARBON:470HM,5%,1/8W,AA,TP1.8X3.2MM		....4	C689	2202-000253	C-CERAMIC,MLC-AXIAL:4.7nf,20%,16V/Y5R,TP	
....4	R125	2001-000793	R-CARBON:470HM,5%,1/8W,AA,TP1.8X3.2MM		....4	C689	2202-000279	C-CERAMIC,MLC-AXIAL:47fF,5%,50V,SL,TP3.	
....4	R125	2001-000857	R-CARBON:5600HM,5%,1/8W,AA,TP1.8X3.2MM		....4	C689	2202-000632	C-CERAMIC,MLC-AXIAL:100nf,20%,50V,Z5U,TP	
....4	R125	2001-000857	R-CARBON:5600HM,5%,1/8W,AA,TP1.8X3.2MM		....4	C689	2202-000796	C-CERAMIC,MLC-AXIAL:1nf,10%,50V,Y5PTP3	
....4	R125	2001-000857	R-CARBON:5600HM,5%,1/8W,AA,TP1.8X3.2MM		....4	C689	2202-000796	C-CERAMIC,MLC-AXIAL:1nf,10%,50V,Y5PTP3	
....4	R125	2001-000857	R-CARBON:5600HM,5%,1/8W,AA,TP1.8X3.2MM		....4	C689	2202-000796	C-CERAMIC,MLC-AXIAL:1nf,10%,50V,Y5PTP3	
....4	R125	2001-000857	R-CARBON:5600HM,5%,1/8W,AA,TP1.8X3.2MM		....4	C689	2202-000796	C-CERAMIC,MLC-AXIAL:1nf,10%,50V,Y5PTP3	
....4	R125	2001-000890	R-CARBON:6.8KOHM,5%,1/8W,AA,TP1.8X3.2M		....4	C689	2202-000796	C-CERAMIC,MLC-AXIAL:1nf,10%,50V,Y5PTP3	
....4	R125	2001-000924	R-CARBON:6800HM,5%,1/8W,AA,TP1.8X3.2MM		....4	C689	2202-000829	C-CERAMIC,MLC-AXIAL:0.82nf,10%,50V,Y5P	
....4	R125	2001-000924	R-CARBON:6800HM,5%,1/8W,AA,TP1.8X3.2MM		....4	C2560	2301-000004	C-FILM,LEAD-PEF:2.2nf,5%,100V,TP,5.5X10X	
....4	R125	2001-000947	R-CARBON:7.5KOHM,5%,1/8W,AA,TP1.8X3.2M		....4	C2560	2301-000004	C-FILM,LEAD-PEF:2.2nf,5%,100V,TP,5.5X10X	
....4	R125	2001-000947	R-CARBON:7.5KOHM,5%,1/8W,AA,TP1.8X3.2M		....4	C2560	2301-00013	C-FILM,LEAD-PEF:4.7nf,5%,100V,TP10.5x12	
....4	R125	2001-000969	R-CARBON:750HM,5%,1/8W,AA,TP1.8X3.2MM		....4	C2560	2301-00016	C-FILM,LEAD-PEF:22nf,5%,100V,TP,7.2x4.5x	
....4	R125	2001-000969	R-CARBON:750HM,5%,1/8W,AA,TP1.8X3.2MM		....4	C2560	2301-00016	C-FILM,LEAD-PEF:22nf,5%,100V,TP,7.2x4.5x	
....4	R125	2001-000969	R-CARBON:750HM,5%,1/8W,AA,TP1.8X3.2MM		....4	C2560	2301-00020	C-FILM,LEAD-PEF:27nf,5%,100V,TP,7.3x4x12	
....4	R125	2001-001006	R-CARBON:820HM,5%,1/8W,AA,TP1.8X3.2MM		....4	C2560	2301-000148	C-FILM,LEAD-PEF:10nf,5%,100V,TP,7x3.2x7m	
....4	R075	2001-001062	R-CARBONS(10MOHM,5%,1/2W,AA,TP2.4X6.4		....4	C2560	2301-000148	C-FILM,LEAD-PEF:10nf,5%,100V,TP,7x3.2x7m	
....4	R075	2001-001078	R-CARBONS(15KOHM,5%,1/2W,AA,TP2.4X6.4		....4	C2560	2301-000192	C-FILM,LEAD-PEF:1nf,5%,50V,TP5.3x10mm,5	
....4	R075	2001-001108	R-CARBONS(22KOHM,5%,1/2W,AA,TP2.4X6.4		....4	C2560	2301-000204	C-FILM,LEAD-PEF:2.7nf,5%,50V,TP,7.4x3.9x	
....4	R075	2001-001114	R-CARBON(S):2700HM,5%,1/2W,AA,TP2.4X6.4		....4	C2560	2301-000213	C-FILM,LEAD-PEF:220nf,5%,250V,TP,21.5x11	
....4	R075	2001-001116	R-CARBON(S):270HM,5%,1/2W,AA,TP2.4X6.4M		....4	C2560	2301-000233	C-FILM,LEAD-PEF:3.9nf,10%,100V,TP,5.8x12	
....4	R075	2001-001117	R-CARBONS(2)KOHM,5%,1/2W,AA,TP2.4X6.4M		....4	C2560	2301-000253	C-FILM,LEAD-PEF:39nf,5%,100V,TP,7.5x4.5X	
....4	R075	2001-001117	R-CARBONS(2)KOHM,5%,1/2W,AA,TP2.4X6.4M		....4	C2560	2301-000445	C-FILM,LEAD-PEF:4.7nf,5%,50V,TP,5.5x73m	
....4	R075	2001-001122	R-CARBON(S):3.9KOHM,5%,1/2W,AA,TP2.4X6.		....4	C420	2301-001065	C-FILM,LEAD-PPF:47nf,5%,63V,TP,19x15.5x	
....4	R075	2001-001138	R-CARBON(S):3900HM,5%,1/2W,AA,TP2.4X6.4		....4	C806	2301-001435	C-FILM,LEAD-PPF:1.5nf,5%,1.2kV,TP,15x8x1	
....4	R075	2001-001150	R-CARBON(S):470KOHM,5%,1/2W,AA,TP2.4X6.		....4	C225	2301-001664	C-FILM,LEAD-OTHER:100nf,3%6,50V,TP,20x16x	
....4	R075	2001-001150	R-CARBON(S):470KOHM,5%,1/2W,AA,TP2.4X6.		....4	C2560	2305-000149	C-FILM,LEAD-PEF:10nf,5%,100V,TP,12x12.5	
....4	R024	2004-001373	R-METAL(S):100Kohm,1%,1/2W,AA,TP2.4X6.4		....4	C2560	2305-000285	C-FILM,LEAD-PEF:220nf,5%,100V,TP,10.5X5.	
....4	R0521	2002-001011	R-COMPOSITION:3.3Mhm,5%,1/2W,AA,TP,3.7x		....4	C2560	2305-000289	C-FILM,LEAD-PEF:1nf,5%,50V,TP5.3x10mm,5	
....4	R0521	2002-001008	R-COMPOSITION:1.8Kohm,10%,1/2W,AA,TP,3.7		....4	C2560	2305-000289	C-FILM,LEAD-PEF:2.7nf,5%,50V,TP,7.4x3.9x	
....4	R0521	2002-001008	R-COMPOSITION:1.8Kohm,10%,1/2W,AA,TP,3.7		....4	C2560	2305-000289	C-FILM,LEAD-PEF:220nf,5%,250V,TP,21.5x11	
....4	R0521	2002-001008	R-COMPOSITION:1.8Kohm,10%,1/2W,AA,TP,3.7		....4	C2560	2305-000289	C-FILM,LEAD-PEF:3.9nf,10%,100V,TP,5.8x12	
....4	R0521	2002-001008	R-COMPOSITION:1.8Kohm,10%,1/2W,AA,TP,3.7		....4	C2560	2305-000289	C-FILM,LEAD-PEF:39nf,5%,100V,TP,7.5x4.5X	
....4	R0521	2002-001012	R-COMPOSITION:8.2Mhm,5%,1/2W,AA,TP,3.7x		....4	C2560	2305-000382	C-FILM,LEAD-PEF:4.7nf,5%,400V,TP,-5mm	
....4	R413	2003-000592	R-METAL OXIDE(S):22ohm,5%,2W,AF,TP4x12m		....4	C2560	2305-000412	C-FILM,LEAD-PEF:47nf,5%,63V,TP,-5mm	
....4	R403	2003-000784	R-METAL OXIDE(S):7.5Kohm,5%,2W,AF,TP4x1		....4	C2560	2305-000412	C-FILM,LEAD-PEF:47nf,5%,63V,TP,-5mm	
....4	R827	2003-000998	R-METAL OXIDE(S):300ohm,5%,2W,AF,TP3.9X10m		....4	C2560	2305-000665	C-FILM,LEAD-PEF:100nf,5%,63V,TP7.5x4.0x	
....4	R802	2003-001040	R-METAL OXIDE(S):47Kohm,5%,2W,AF,TP3.9x		....4	C2560	2305-000665	C-FILM,LEAD-PEF:100nf,5%,63V,TP7.5x4.0x	
....4	R834	2003-001040	R-METAL OXIDE(S):47Kohm,5%,2W,AF,TP3.9x		....4	C2560	2305-000665	C-FILM,LEAD-PEF:100nf,5%,63V,TP7.5x4.0x	
....4	R315	2003-002069	R-METAL OXIDE:470ohm,5%,2W,AF,TP3.9X10m		....4	C2560	2305-000665	C-FILM,LEAD-PEF:100nf,5%,63V,TP7.5x4.0x	
....4	R316	2003-002069	R-METAL OXIDE:470ohm,5%,2W,AF,TP3.9X10m		....4	C2560	2305-000665	C-FILM,LEAD-PEF:100nf,5%,63V,TP7.5x4.0x	
....4	R407	2003-002209	R-METAL OXIDE(S):47Kohm,5%,2W,AG,TP3.9X		....4	C2560	2305-000665	C-FILM,LEAD-PEF:100nf,5%,63V,TP7.5x4.0x	
....4	R811	2003-002239	R-METAL(OHMS):100KOHM,5%,2W,AF,TP3.9		....4	C2560	2305-000665	C-FILM,LEAD-PEF:100nf,5%,63V,TP7.5x4.0x	
....4	R812	2003-002239	R-METAL(OHMS):100KOHM,5%,2W,AF,TP3.9		....4	C2560	2305-000665	C-FILM,LEAD-PEF:100nf,5%,63V,TP7.5x4.0x	
....4	R303	2003-002279	R-METAL OXIDE(S):1.2OHM,5%,2W,AG,TP,5.6X		....4	C2560	2305-000665	C-FILM,LEAD-PEF:100nf,5%,63V,TP7.5x4.0x	
....4	R401	2003-002288	R-METAL OXIDE(S):2.2KOHM,5%,2W,AF,TP3.9		....4	C2560	2305-000665	C-FILM,LEAD-PEF:100nf,5%,63V,TP7.5x4.0x	
....4	R402	2003-002288	R-METAL OXIDE(S):2.2KOHM,5%,2W,AF,TP3.9		....4	C2560	2305-000665	C-FILM,LEAD-PEF:100nf,5%,63V,TP7.5x4.0x	
....4	R404	2004-001402	R-METAL(S):6.8Kohm,1%,1/2W,AA,TP,2.4X4		....4	C2560	2305-000665	C-FILM,LEAD-PEF:100nf,5%,63V,TP7.5x4.0x	
....4	R219	2004-001914	R-METAL(S):39Kohm,2%,1/8W,AA,TP,1.8x3.5mm		....4	C701	2401-00025	C-AL:100uf,20%,16V,GPT,TP,6.3x11.5	
....4	R024	2004-001970	R-METAL(S):1.8Kohm,1%,1/2W,AA,TP,6.5x2.5		....4	C701	2401-00025	C-AL:100uf,20%,16V,GPT,TP,6.3x11.5	
....4	R024	2004-004089	R-METAL(S):123Kohm,1%,1/2W,AA,TP,2.5x6.5		....4	C701	2401-00025	C-AL:100uf,20%,16V,GPT,TP,6.3x11.5	
....4	R306	2004-004097	R-METAL:1.6Kohm,2%,1/2W,AA,TP,6.5x2.5m		....4	C701	2401-000262	C-AL:100uf,20%,160V,HR,TP,16x25.7.5	
....4	R304	2008-000264	R-FUSIBLE(S):1ohm,5%,1W,AF,TP,3.9x10mm		....4	C701	2401-000302	C-AL:100uf,20%,25V,GPT,TP,6.3x11.5	
....4	R825	2008-000284	R-FUSIBLE(S):0.10HM,10%,2W,AF,TP,3.9X10M		....4	C701	2401-000302	C-AL:100uf,20%,25V,GPT,TP,6.3x11.5	
....4	R824	2008-000294	R-FUSIBLE(S):33ohm,5%,2W,AF,TP,3.9x10mm		....4	C701	2401-00050	C-AL:10uf,20%,16V,GP,TP,5x11.2.5	
....4	R420	2008-001062	R-FUSIBLE:39ohm,5%,2W,AF,TP,3.9x10mm		....4	C701	2401-00050	C-AL:10uf,20%,16V,GP,TP,5x11.2.5	
....4	R814	2008-001086	R-FUSIBLE(S):3.3ohm,5%,2W,AG,TP,3.9x12mm		....4	C701	2401-00262	C-AL:100uf,20%,160V,HR,TP,16x25.7.5	
....4	R421	2008-001011	R-FUSIBLE(S):0.18ohm,10%,2W,AF,TP,3.9x10		....4	C701	2401-000302	C-AL:100uf,20%,25V,GPT,TP,6.3x11.5	
....4	R505	2008-001076	R-FUSIBLE(S):1.8ohm,5%,2W,AF,TP,3.9x10mm		....4	C701	2401-000302	C-AL:100uf,20%,25V,GPT,TP,6.3x11.5	
....4	R305	2008-001159	R-FUSIBLE(S):1.50HM,5%,1W,AF,TP,3.9X10MM		....4	C701	2401-000302	C-AL:100uf,20%,25V,GPT,TP,8x11.5,5	
....4	C598	2201-000259	C-CERAMIC,DISC:0.18NF,10%,500V,Y5P,TP,5.		....4	C701	2401-000360	C-AL:100uf,20%,50V,W,T,TP,10x12.5mm,	
....4	C598	2201-002028	C-CERAMIC,DISC:0.47NF,10%,2KV,Y5PTP,7.5		....4	C701	2401-000365	C-AL:100uf,20%,50V,W,T,TP,10x12.5mm,	

Level	Loc. No.	Code No.	Description ; Specification	Remark	Level	Loc. No.	Code No.	Description ; Specification	Remark
....4	C701	2401-000430	C-AL:10uF,20%,250V,GP,TP,10x16mm,5m		....4	EY408	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-000480	C-AL:10uF,20%,50V,GP,TP,5x11,5		....4	EY409	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-000480	C-AL:10uF,20%,50V,GPT,TP,5x11,5		....4	EY410	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-000481	C-AL:10uF,20%,50V,WTF,TP,5x11,5		....4	EY411	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-000603	C-AL:1uF,20%,50V,GPT,TP,5x11,2		....4	EY412	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-000603	C-AL:1uF,20%,50V,GP,TP,5x11,2		....4	EY414	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-000649	C-AL:2.2uF,20%,50V,BPT,TP,5x11,5		....4	EY415	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-000660	C-AL:2.2uF,20%,50V,GPT,TP,5x11,5		....4	EY416	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-000660	C-AL:2.2uF,20%,50V,GP,TP,5x11,5		....4	EY417	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-000722	C-AL:220uF,20%,25V,WTF,TP,16x25,7.5		....4	EY418	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-000758	C-AL:0.22uF,20%,50V,GP,TP,5x11,5		....4	EY419	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-000962	C-AL:22uF,20%,50V,GP,TP,5x11,5		....4	EY420	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-001101	C-AL:330uF,20%,16V,GPT,TP,8x11,5,5		....4	EY422	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-001176	C-AL:33uF,20%,25V,GP,TP,5x11,5		....4	EY423	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-001192	C-AL:33uF,20%,50V,GPT,TP,6.3x11,5		....4	EY501	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-001232	C-AL:4.7uF,20%,250V,GPT,TP,10x12,5,5		....4	EY801	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-001486	C-AL:47uF,20%,160V,HR,TP,13x20mm,5m		....4	EY802	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-001989	C-AL:4.7uF,20%,50V,BPT,TP,5x11,5		....4	EY803	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-001998	C-AL:1000uF,20%,25V,GP,TP,10x20,5mm		....4	EY807	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-002268	C-AL:2.2uF,20%,250V,LZ,TP,8x11,5		....4	EY808	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-002278	C-AL:22uF,20%,250V,WTF,TP,13x20,5		....4	EY809	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-002288	C-AL:470uF,20%,25V,WTF,TP,10x20,5		....4	EY810	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-002288	C-AL:470uF,20%,25V,WTF,TP,10x20,5		....4	EY813	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-002619	C-AL:47uF,20%,25V,GP,TP,5x11,5		....4	EY818	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-003028	C-AL:100uF,20%,25V,WTF,TP,6.3x11,5		....4	EY819	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	C701	2401-003028	C-AL:100uF,20%,25V,WTF,TP,6.3x11,5		....4	EY821	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L103	2701-000114	INDUCTOR-AXIAL:10uH,10%,2534		....4	EY822	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L202	2701-000114	INDUCTOR-AXIAL:10uH,10%,2534		....4	EY823	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L902	2701-000114	INDUCTOR-AXIAL:10uH,10%,2534		....4	EY824	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L904	2701-000114	INDUCTOR-AXIAL:10uH,10%,2534		....4	EY825	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	J142	2701-000115	INDUCTOR-AXIAL:10uH,10%,3070		....4	EY827	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L405	2701-000116	INDUCTOR-AXIAL:10uH,10%,4298		....4	EY828	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L301	2701-000142	INDUCTOR-AXIAL:1uH,10%,2534		....4	EY829	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L302	2701-000142	INDUCTOR-AXIAL:1uH,10%,2534		....4	EY830	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L404	2701-000142	INDUCTOR-AXIAL:1uH,10%,2534		....4	EY833	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L201	2701-000158	INDUCTOR-AXIAL:22uH,10%,2534		....4	EY850	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L205	2701-000158	INDUCTOR-AXIAL:22uH,10%,2534		....4	EY851	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L903	2701-000158	INDUCTOR-AXIAL:22uH,10%,2534		....4	EY852	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L102	2701-000159	INDUCTOR-AXIAL:22uH,10%,4298		....4	EY853	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L104	2701-000168	INDUCTOR-AXIAL:3.3uH,5%,2534		....4	EY860	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L204	2701-000168	INDUCTOR-AXIAL:3.3uH,5%,2534		....4	EY861	6042-000002	EYELET;ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	S.N.A
....4	L702	2701-000184	INDUCTOR-AXIAL:4.7uH,10%,2534		....4	LX085	AA27-90001B	COIL-SPARK,GAP,S-23.15KV,-.....	
....4	L703	2701-000184	INDUCTOR-AXIAL:4.7uH,10%,2534		....4	FIX01	AA37-00001A	CONNECTOR-FBT FIX PIN:JM-3500,CPTTV,0.36	
....4	L704	2701-000184	INDUCTOR-AXIAL:4.7uH,10%,2534		....4	FIX02	AA37-00001A	CONNECTOR-FBT FIX PIN:JM-3500,CPTTV,0.36	
....4	L706	2701-000184	INDUCTOR-AXIAL:4.7uH,10%,2534		....4	0	AA41-01027C	PCB MAIN: C221M16/M20/N11,FR-1,1,C,245*2	S.N.A
....4	L804	2701-001030	INDUCTOR-AXIAL:43uH,10%,4514		....4	GT101	AA60-40014A	PIN-GT,ASSY,AUTO	S.N.A
....4	F101	2901-000297	FILTER-EMI ON BOARD:-3A,-,3.5x5,TP-		....4	GT501	AA60-40014A	PIN-GT,ASSY,AUTO	S.N.A
....4	F101	2901-000297	FILTER-EMI ON BOARD:-3A,-,3.5x5,TP-		....4	GT502	AA60-40014A	PIN-GT,ASSY,AUTO	S.N.A
....4	Z203	2903-001246	FILTER-CERAMIC:TR,5.5MHz,-,TP,multi.		....4	GT801	AA60-40014A	PIN-GT,ASSY,AUTO	S.N.A
....4	L2514	3301-000287	BEAD-AXIAL:-3.5x1.0x6.0mm,3000mA,TP,,50		....4	GT802	AA60-40014A	PIN-GT,ASSY,AUTO	S.N.A
....4	L2514	3301-000287	BEAD-AXIAL:-3.5x1.0x6.0mm,3000mA,TP,,50		....4	GT803	AA60-40014A	PIN-GT,ASSY,AUTO	S.N.A
....4	L2514	3301-000287	BEAD-AXIAL:-3.5x1.0x6.0mm,3000mA,TP,,50		....4	GT804	AA60-40014A	PIN-GT,ASSY,AUTO	S.N.A
....4	L2514	3301-000287	BEAD-AXIAL:-3.5x1.0x6.0mm,3000mA,TP,,50		....4	GT805	AA60-40014A	PIN-GT,ASSY,AUTO	S.N.A
....4	L2514	3301-000287	BEAD-AXIAL:-3.5x1.0x6.0mm,3000mA,TP,,50		....4	GT806	AA60-40014A	PIN-GT,ASSY,AUTO	S.N.A
....4	L2514	3301-000287	BEAD-AXIAL:-3.5x1.0x6.0mm,3000mA,TP,,50		....4	GT807	AA60-40014A	PIN-GT,ASSY,AUTO	S.N.A
....4	SW901	3404-000244	SWITCH-TACT:15V,20mA,90-170gf,7.5x7mm,SP		....4	X901	2801-003937	CRYSTAL-UNIT:12MHz,25ppm,28-AAM,30pf,300	
....4	SW902	3404-000244	SWITCH-TACT:15V,20mA,90-170gf,7.5x7mm,SP		....4	RW701	2011-001133	R-NET:3K/24K/75x3.5%,1/8W,X,SIP6,	
....4	SW903	3404-000244	SWITCH-TACT:15V,20mA,90-170gf,7.5x7mm,SP		....4	C410A	2301-001385	C-FILM,LEAD-PFP,30xF5%,630V,TP20x15.5x	
....4	SW904	3404-000244	SWITCH-TACT:15V,20mA,90-170gf,7.5x7mm,SP		....4	FP801S	3601-000281	FUSE-CARTRIDGE:250V,4A,TIME-LAG,GLASS,5.	
....4	SW905	3404-000244	SWITCH-TACT:15V,20mA,90-170gf,7.5x7mm,SP		....4	R075	2001-001037	R-CARBON(S)0.39OHM,5%,1/2W,AA,TP,2.4X6.	
....4	FD801S	3601-001086	FUSE-AXIAL LEAD:125V,5A,FAST-ACTING,GLAS		....4	IC063	AA13-20004W	IC HYBRID:-,PAP103,SIP,6P,PRE-AMP,TP	
....4	F801A	3602-000114	FUSE-HOLDER:-,30mohm		....4	L101	2701-000171	INDUCTOR-AXIAL:0.33uH,10%,2534	
....4	F801B	3602-000114	FUSE-HOLDER:-,30mohm		....3	CN906	3711-002642	CONNECTOR-HEADER BOX,3P,1R,2.5mm,STRAIGH	
....4	EL403	6042-000001	EYELET:ID2,OD2,OD2,7,L3.1,NI+SN,BSP3-1/		....3	CN906	3711-002648	CONNECTOR-HEADER BOX,9P,1R,2.5mm,STRAIGH	
....4	EL404	6042-000001	EYELET:ID2,OD2,OD2,7,L3.1,NI+SN,BSP3-1/		.2	T0077	AA39-10001G	CBF POWER CORD:-,KPP-419C,KLCE-2F,2.286m	S.N.A
....4	EL801	6042-000001	EYELET:ID2,OD2,OD2,7,L3.1,NI+SN,BSP3-1/		.2	AA81-00129A	A/S-TAPE-INK:ALL,BLK,W100MM	S.N.A	
....4	EL802	6042-000001	EYELET:ID2,OD2,OD2,7,L3.1,NI+SN,BSP3-1/		.2	HA83-00052A	LP-TAPE-INK:,WIDTH 55 MM	S.N.A	
....4	EL804	6042-000001	EYELET:ID2,OD2,OD2,7,L3.1,NI+SN,BSP3-1/						
....4	EY101	6042-000002	EYELET:ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H						
....4	EY401	6042-000002	EYELET:ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H						
....4	EY402	6042-000002	EYELET:ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H						
....4	EY403	6042-000002	EYELET:ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H						
....4	EY404	6042-000002	EYELET:ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H						
....4	EY405	6042-000002	EYELET:ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H						
....4	EY406	6042-000002	EYELET:ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H						
....4	EY407	6042-000002	EYELET:ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H						

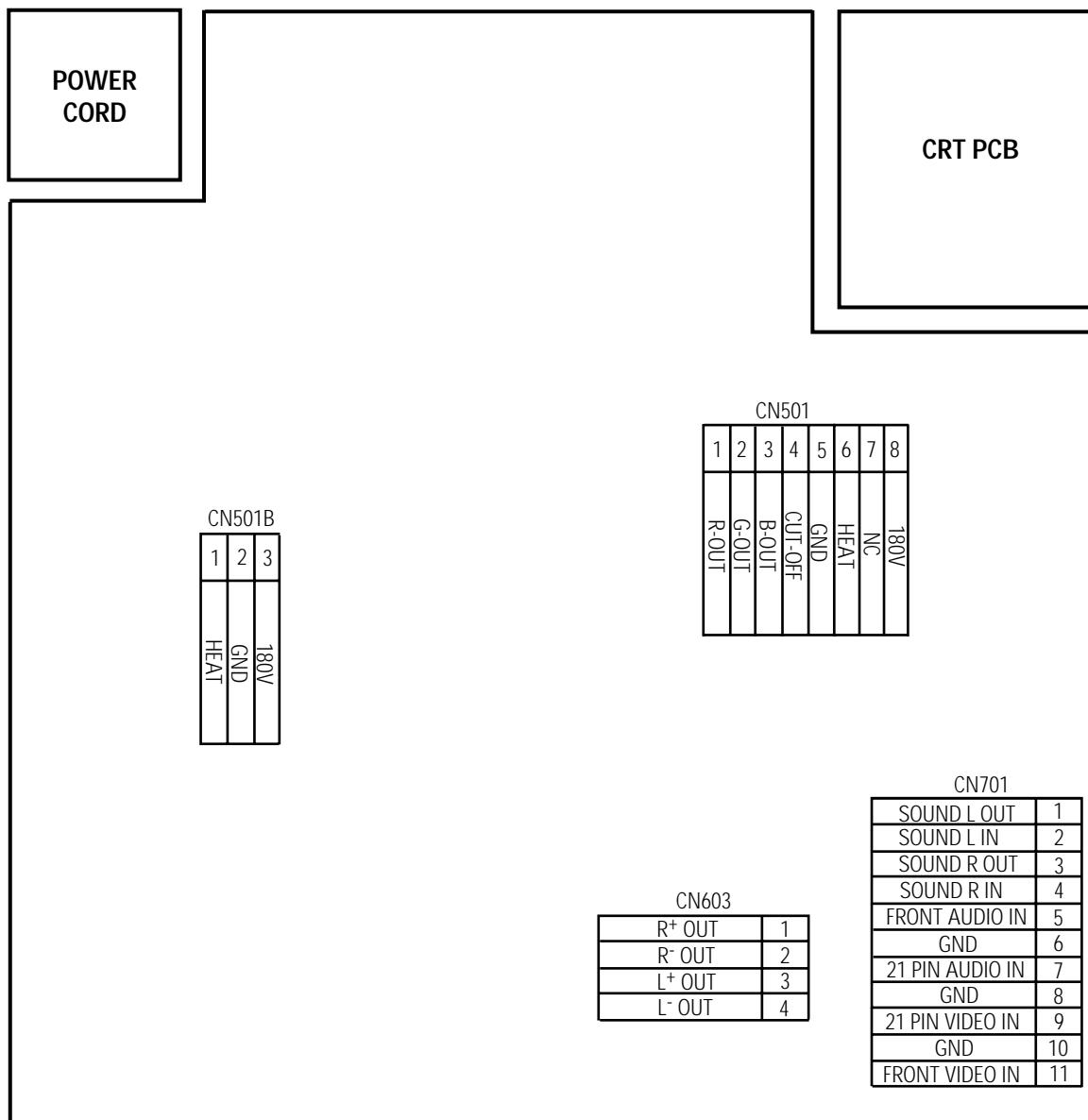
8. Block Diagram

8-1 KS9A



9. Wiring Diagram

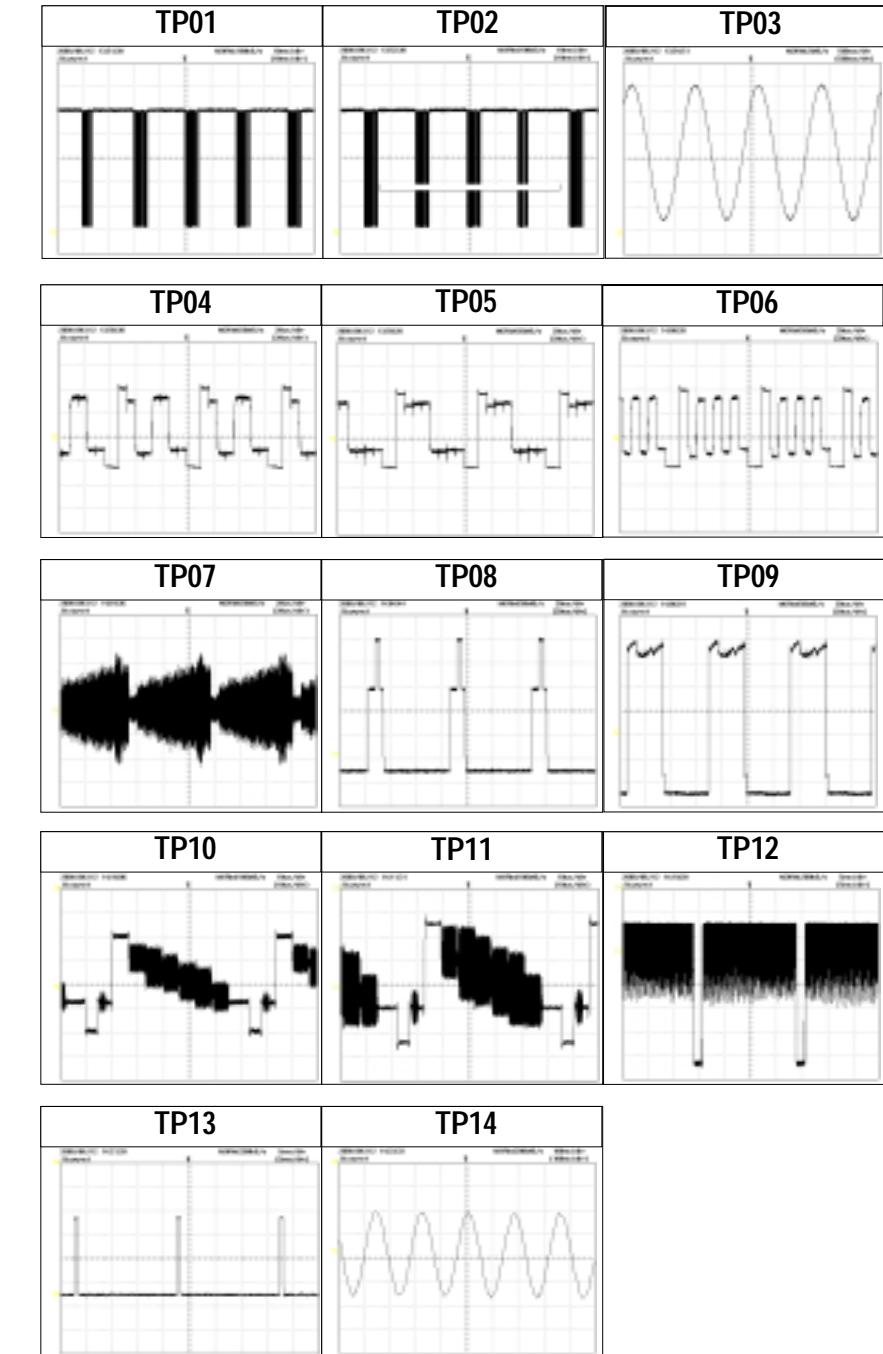
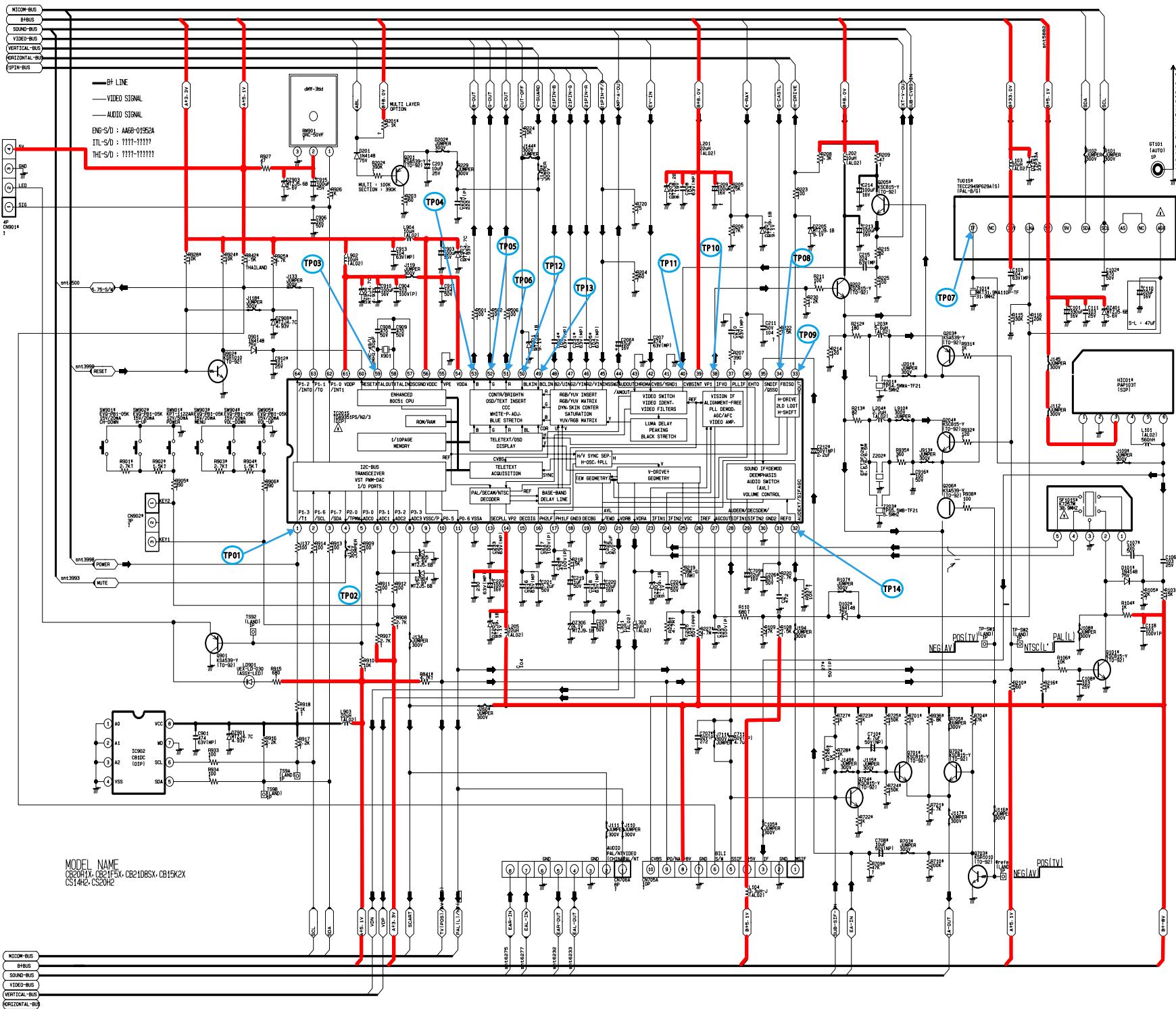
9-1 KS9A



MEMO

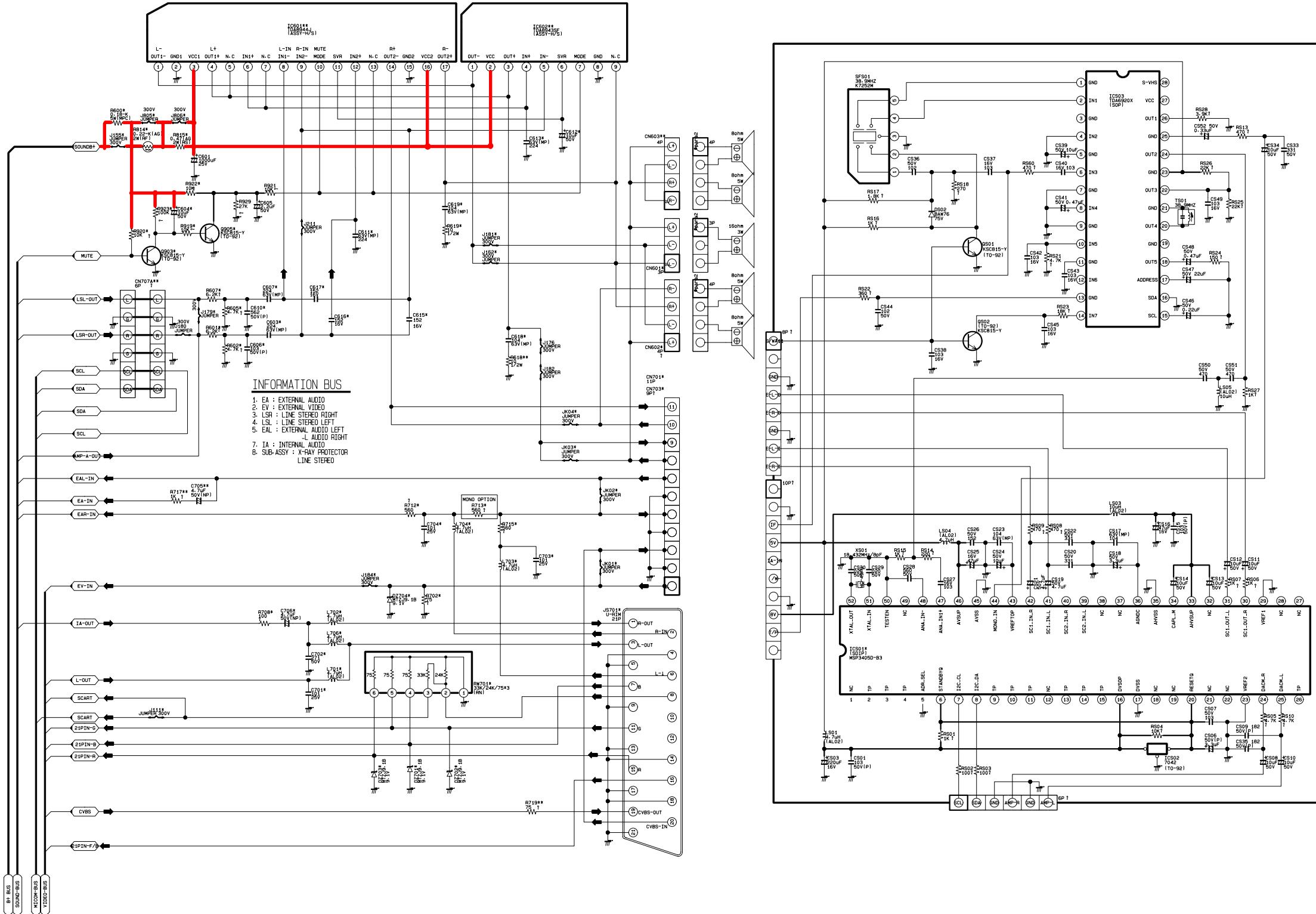
10. Schematic Diagrams

10-1 ONECHIP & MICOM



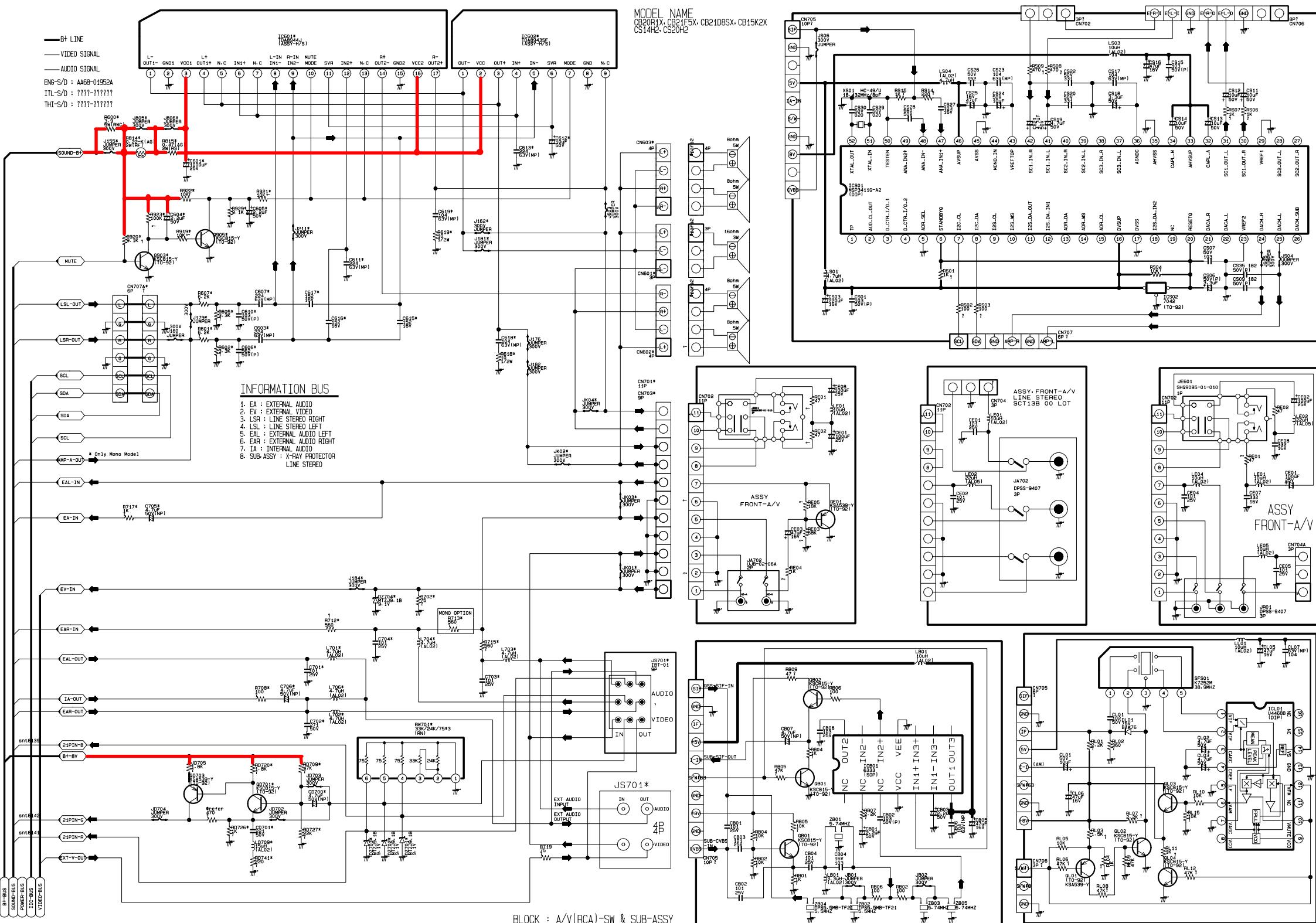
 : Power Line

10-2 SOUND, EXT-A/V (SCART)

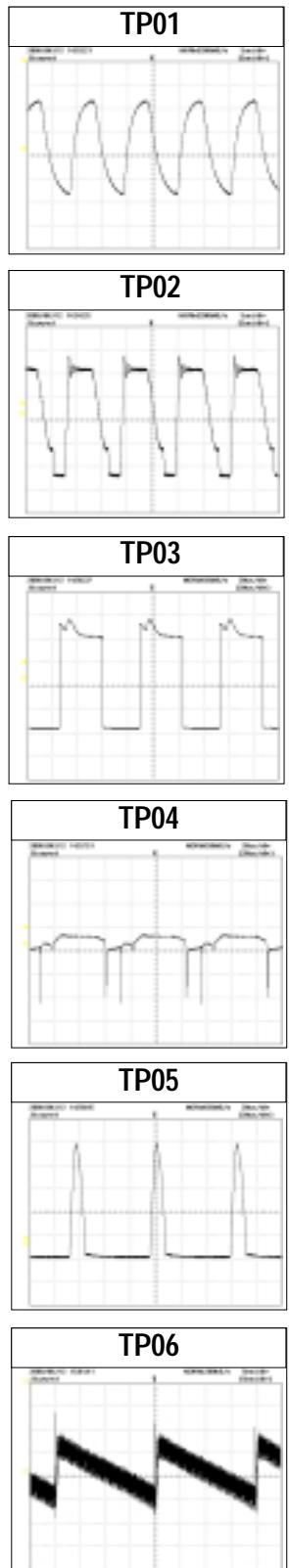
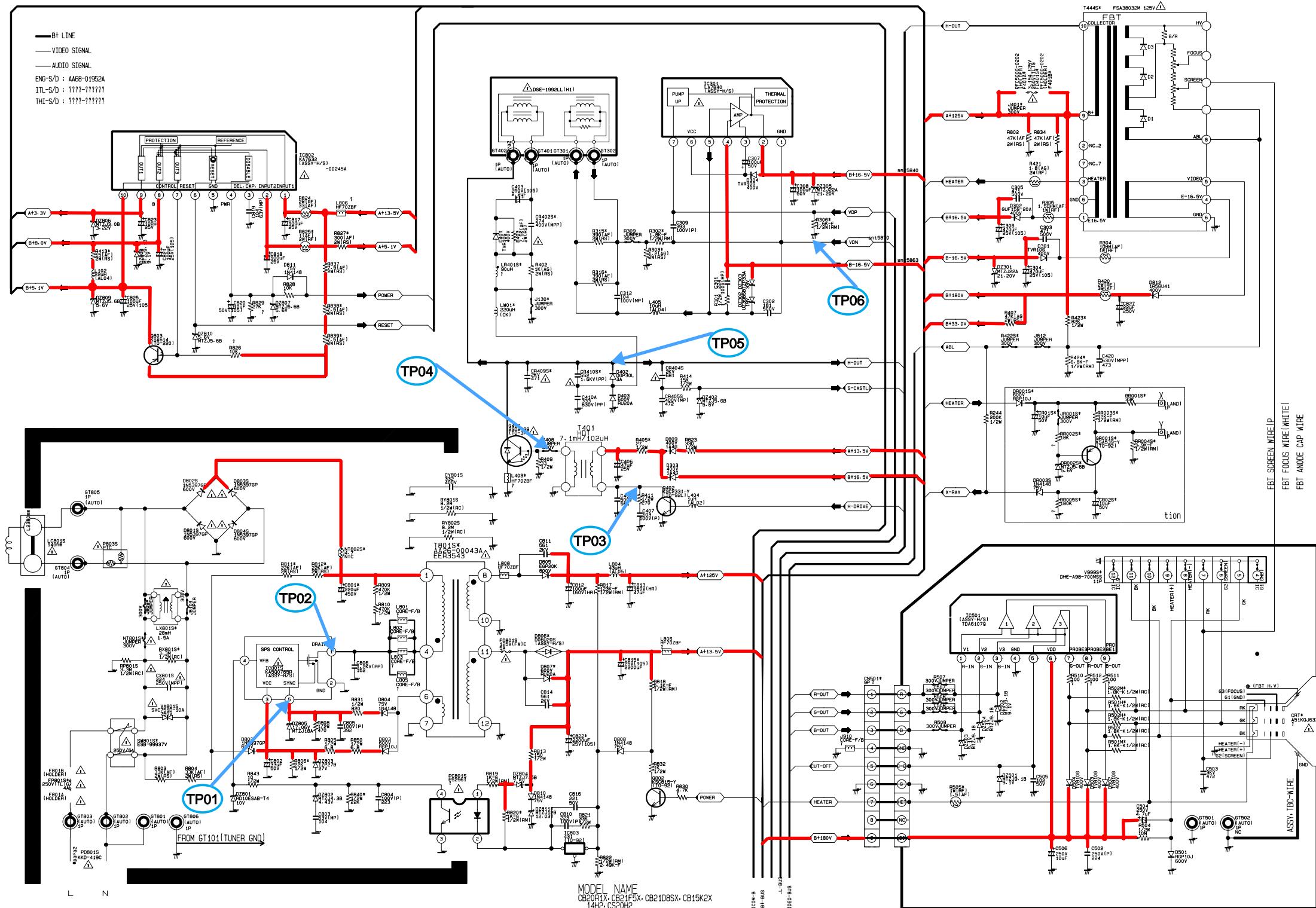


: Power Line

10-3 SOUND, EXT-A/V (RCA)

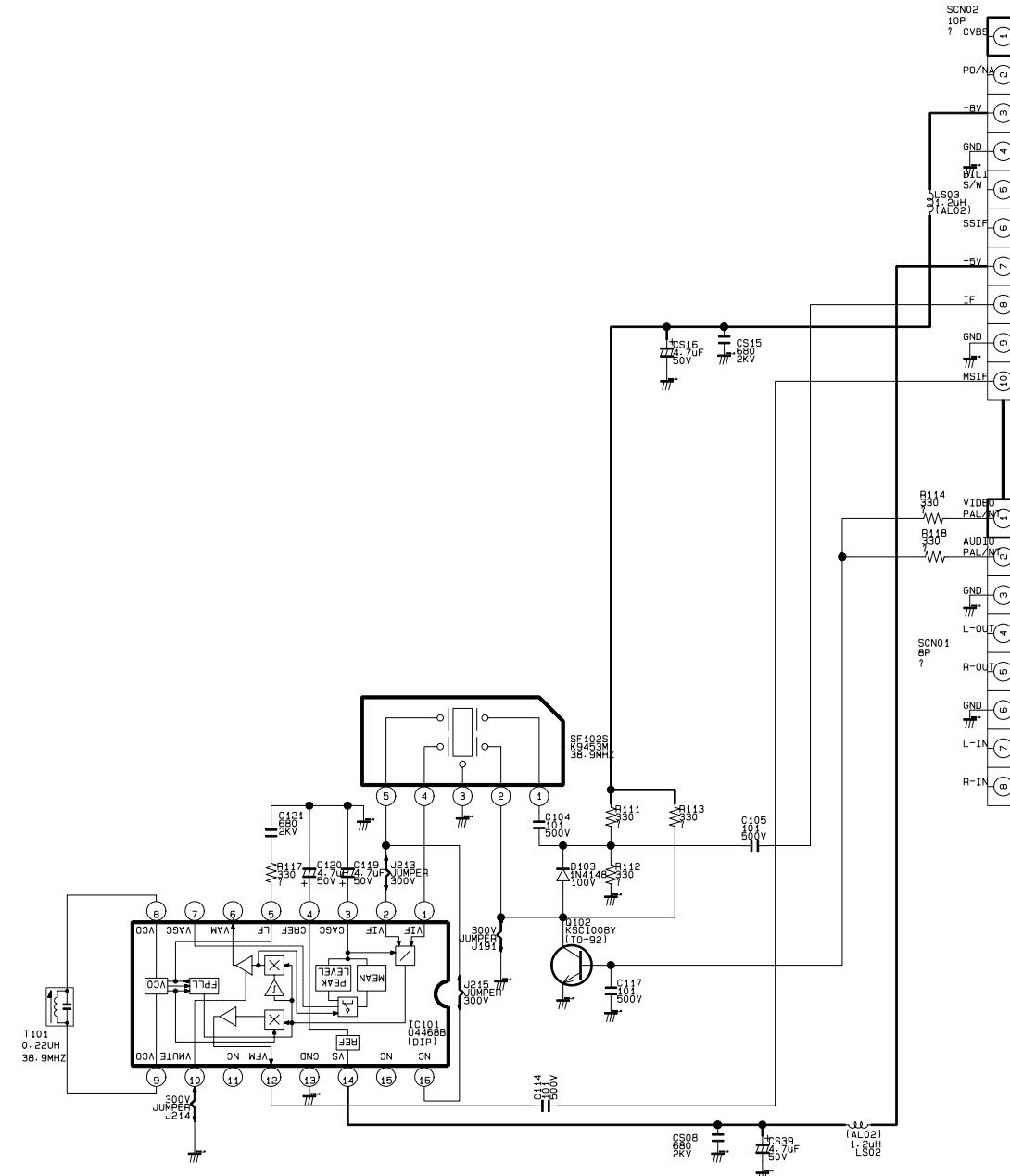


10-4 POWER / CRT / VERTICAL / HORIZONTAL



: Power Line

10-5 SUB PCB-MONO



10-6 SUB PCB-STEREO

